

# Service Manual

**Sec. 5** *Replacement Parts List*

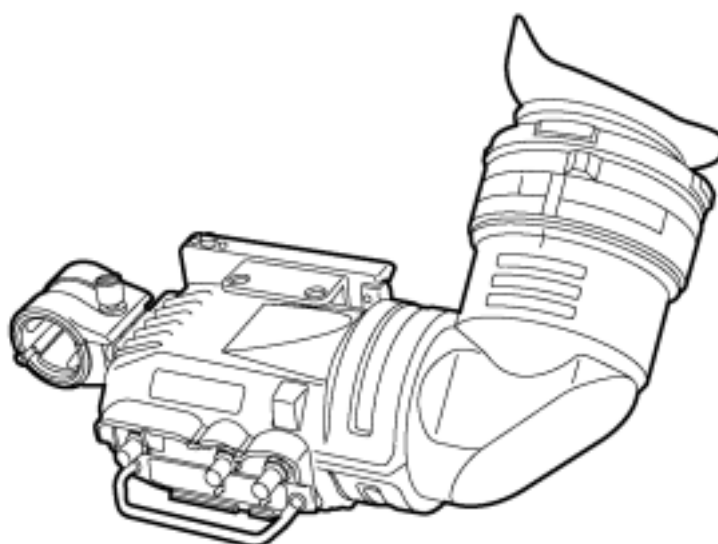
1.5-inch Electronic View Finder

**AJ-VF15BP/E**

2-inch Electronic View Finder

**AJ-VF20WBP/E**

*Simplified*



**Panasonic**

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## ***Specifications***

<b>Power supply:</b>	DC 12 V (supplied by camera)
<b>Power consumption:</b>	2.1 W (AJ-VF15BP, AJ-VF15BE) 2.7 W (AJ-VF20WBP, AJ-VF20WBE)

### **Picture tube:**

- 1.5-inch high-resolution monochrome picture tube (AJ-VF15BP, AJ-VF15BE)
- 2-inch high-resolution monochrome picture tube (AJ-VF20WBP, AJ-VF20WBE)

### **Horizontal resolution:**

- 600 lines (center, typical, 4 : 3 mode)

### **Image system:**

- 525 lines, 60 fields (AJ-VF15BP, AJ-VF20WBP)
- 625 lines, 50 fields (AJ-VF15BE, AJ-VF20WBE)

### **External adjustment controls:**

- Controls (BRIGHT, CONTRAST, PEAKING)
- Switches (TALLY HIGH/OFF/LOW, ZEBRA ON/OFF)

### **Allowable temperature range:**

- 32F to 104F (0C to 40C)

### **Allowable humidity range:**

- 85% or less (no condensation)


### **External dimensions (W H D):**

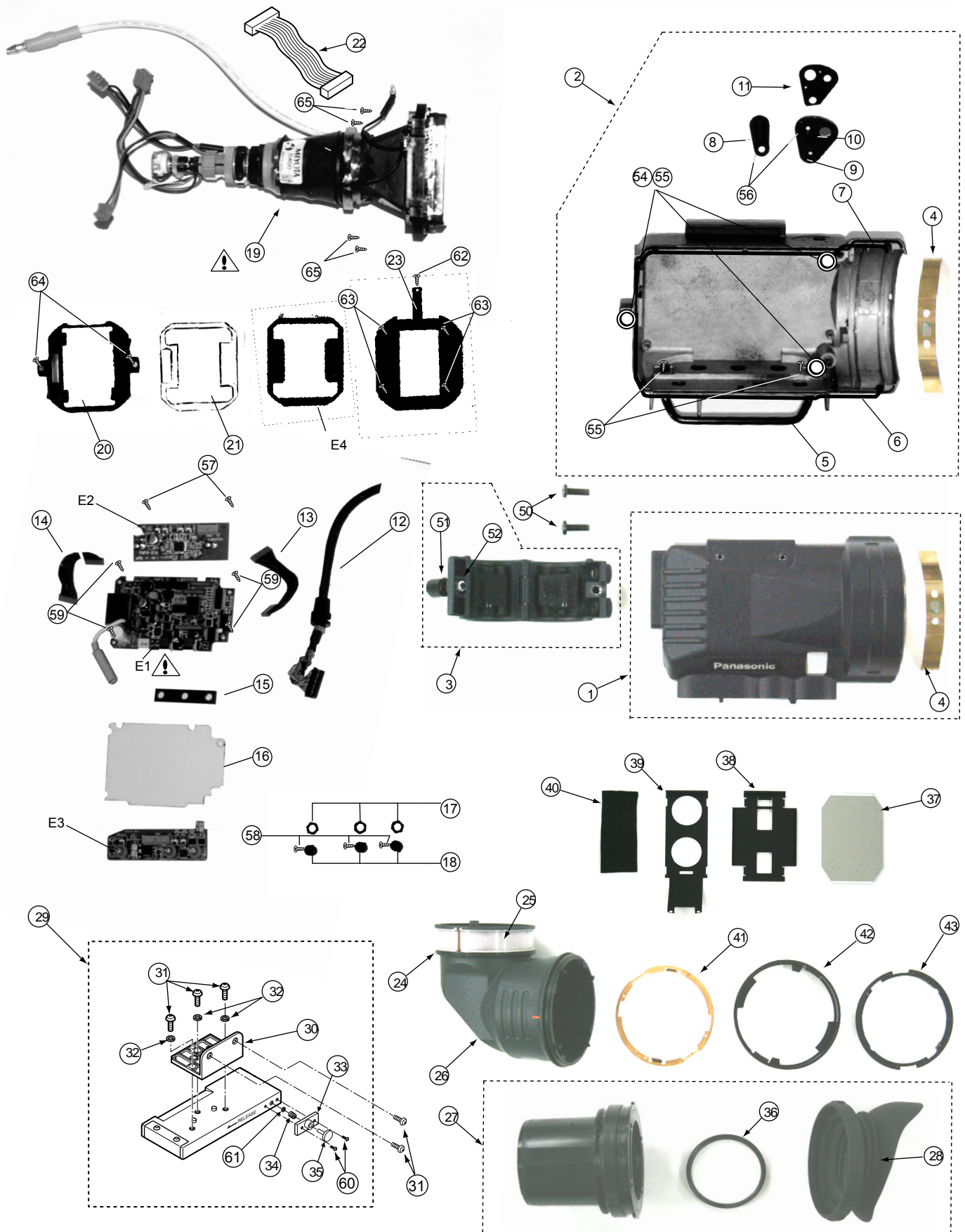
- 9 1/2 3 3/16 8 1/8 inches (240 80 206 mm)

### **Weight:**


- 1.606 lb (730 g) (AJ-VF15BP, AJ-VF15BE)
- 1.639 lb (745 g) (AJ-VF20WBP, AJ-VF20WBE)

# MECHANICAL PARTS ASSEMBLY

Components identified with the mark  have the special characteristics for safety. When replacing any of these components, use only the same type.



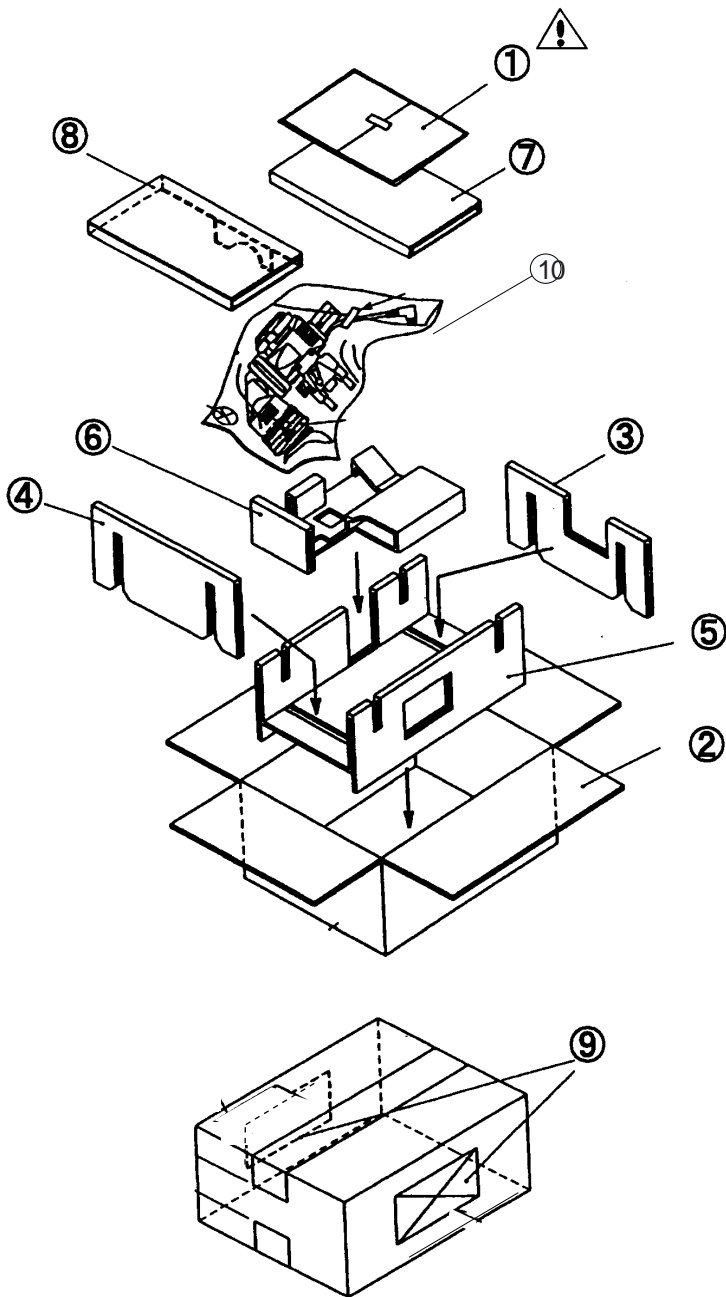
# MECHANICAL PARTS ASSEMBLY

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VYK9294	TOP CASE ASS'Y	1		E2	VEP20781D	SUB 1 P.C.BOARD	1	FOR AJ-VF15BE
2	VYK9295	BOTTOM CASE ASS'Y	1		E2	VEP20781A	SUB 1 P.C.BOARD	1	FOR AJ-VF20B/P
3	VYK0884	MIC HOLDER ASS'Y	1		E2	VEP20781C	SUB 1 P.C.BOARD	1	FOR AJ-VF20B/E
4	VMC1513	PLATE SPRING (A)	1		E3	VEP20782B	SUB 2 P.C.BOARD	1	FOR AJ-VF15BP/E
5	VW40389	GUARD BAR	1		E3	VEP20782A	SUB 2 P.C.BOARD	1	FOR AJ-VF20B/P/E
6	VMG1217	CASE PACKING (1)	1		E4	VEP20783	LED P.C.BOARD	1	
7	VMG1218	CASE PACKING (2)	1						
8	VGB170	TALLY KNOB	1						
9	VGG3321	TALLY BASE	1						
10	VGL0837	BACK TALLY COVER	1						
11	VMG1219	BACK TALLY SHEET	1						
12	VEO0969	VF CABLE	1						
13	VEE0J46	13P CABLE	1						
14	VEE0J45	10P CABLE	1						
15	VMG1225	SV PACKING	1						
16	VMZ2914	INSULATOR	1						
17	VHD1264	VR NUT	3						
18	VGB171	VR KNOB	3						
 19	VBK8805	CRT/DY CONNECTOR ASS'Y	1	FOR AJ-VR15BP					
 19	VBK8998	CRT/DY CONNECTOR ASS'Y	1	FOR AJ-VF15BE					
 19	VBK8804	CRT/DY CONNECTOR ASS'Y	1	FOR AJ-VF20B/P					
 19	VBK9001	CRT/DY CONNECTOR ASS'Y	1	FOR AJ-VF20B/E					
20	VGH4342	DISPLAY PLATE	1						
21	VMZ2915	MASK SHEET	1						
22	VEE0J44	10P CABLE	1	QW(MAIN) - QW1(LED)					
23	VMK2921	MASK SPACER	1	FOR AJ-VR15BP/E					
23	VMK2890	MASK SPACER	1	FOR AJ-VF20B/P/E					
24	VMG1221	LENS LOCK PACKING	1						
25	VMK3242	SLIP RING	1						
26	VGP5040	OUT SIDE HOLDER	1						
27	VYK0809	LENS CASE	1	FOR AJ-VR15BP/E					
27	VYK0810	LENS CASE	1	FOR AJ-VF20B/P/E					
28	VMG1423-S	EYE CAP	1						
29	VFC3995	VF RAIL ASS'Y	1						
30	VGM1655	LOOK TABLE	1						
31	XSB3+8VZ	SCREW	5						
32	XWA3BFZ	WASHER	3						
33	VMF7716	STOPPER BASE	1						
34	VMB3791	STOPPER SPRING	1						
35	VMF7411	STOPPER PIN	1						
36	VDL0965	UV FILTER	1						
37	VDL0963	VF MIRROR	1						
38	VMF6010	MIRROR GUIDE	1						
39	VMF6011	MIRROR PLATE	1						
40	VMG1449	MIRROR CUSHION	1						
41	VMC1514	LOOK SPRING	1						
42	VGG1522	LOOK RING	1						
43	VMK2887	LOOK SPACER	1						
50	XSB4+12FXS	SCREW	2						
51	VHD1528	SCREW	1						
52	XWG/35D8G	WASHER	1						
54	VMK2885	SCREW/WASHER	3						
55	XVE26+A8FZ	SCREW	5						
56	MH-04J8	SCREW	2						
57	XQN2+A4FN	SCREW	2						
58	XVE2/M8FP	HEX SCREW	3						
59	XSB2+4FC	SCREW	4						
60	XQN2+A3FZ	SCREW	2						
61	XLC15FP	E-RING	1						
62	XTN2+6CFN	SCREW	1						
63	MH04-97	SCREW	4						
64	XTN26+8CFZ	SCREW	2						
65	MH04-92	SCREW	4						
E1	VEP20780B	MAIN P.C.BOARD	1	FOR AJ-VF15BP					
E1	VEP20780D	MAIN P.C.BOARD	1	FOR AJ-VF15BE					
E1	VEP20780A	MAIN P.C.BOARD	1	FOR AJ-VF20B/P					
E1	VEP20780C	MAIN P.C.BOARD	1	FOR AJ-VF20B/E					
E2	VEP20781B	SUB 1 P.C.BOARD	1	FOR AJ-VF15BP					

## PACKING PARTS ASSEMBLY

Components identified with the mark  have the special characteristics for safety. When replacing any of these components, use only the same type.









## PACKING PARTS ASSEMBLY



[illegible]

# ELECTRICAL REPLACEMENT PARTS LIST

## AJ-VF15BP

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
 E1	VEP20780B	MAIN P.C.BOARD	1	(RTL)	IC2	TC74HC08AF	IC	1	C0JBAA000084
 E2	VEP20781B	SUB 1 P.C.BOARD	1	(RTL)	IC3	C0JBAB000180	IC	1	
 E3	VEP20782B	SUB 2 P.C.BOARD	1	(RTL)	IC4	M66311FP	IC	1	C0HBZ0000021
 E4	VEP20783	LED P.C.BOARD	1	(RTL)	IC5	TL1453CNS	IC	1	
					IC6	TC4S01F	IC	1	
					IC7	TC4W53F	IC	1	C0JBAR000225
					IC9	UPC358G2	IC	1	
					IC10	TC4S69F	IC	1	C0JBAB000139
					IC12	LM4041EIM312	DIODE	1	
					L1	VLQ0891	COIL	1	
					L3	VLQ0891	COIL	1	
					Q1	2SC4081	TRANSISTOR	1	
					Q2	2SJ245S	TRANSISTOR	1	
					Q3	2SA1579	TRANSISTOR	1	
					Q4	2SB1132	TRANSISTOR	1	
					Q5,Q6	2SK1254	TRANSISTOR	2	
 E1	VEP20780B	MAIN P.C.BOARD	1	(RTL)	Q9-12	2SC4081	TRANSISTOR	4	
					Q20	2SC4081	TRANSISTOR	1	
					Q21	2SA1576A	TRANSISTOR	1	
C1	VCS1DQ106	T.CAPACITOR CH 20V 10U	1						
C2	VCS1AQ226	T.CAPACITOR CH 10V 22U	1		R1	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
C3	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R2	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
C4	VCEV1EBL331	E.CAPACITOR 25V 330U	1		R3	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
C5	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R4	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
C6	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	1		R5	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C7	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R6	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C8	ECUM1H391JCN	C.CAPACITOR CH 50V 390P	1		R7	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C9	VCEA1CBG101	E.CAPACITOR 16V 100U	1		R9	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C13	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R11	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C14	VCS1DQ335	T.CAPACITOR CH 20V 3.3U	1		R17,18	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	2	
C15	VCS1CQ107	T.CAPACITOR CH 16V 100U	1		R20,21	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	2	
C16	ECJ2VC1H221J	C.CAPACITOR CH 50V 220P	1		R22-24	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	3	
C18	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R25-27	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	3	
C19	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1		R28	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
C20	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1		R29	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1	
C21	ECUM1H473KBN	C.CAPACITOR CH 50V 0.047U	1		R30,31	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	2	
C24	VCF01AP822	P.CAPACITOR 100V 8200P	1		R32	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C26	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1		R33-35	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	3	
C27	VCS1DQ475	T.CAPACITOR CH 20V 4.7U	1		R36	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
C28	VCK0302	C.CAPACITOR 1000V 470P	1		R37	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C29	VCEV1HBB4R7	E.CAPACITOR 50V 4.7U	1		R38	ERJ6GEYG362	M.RESISTOR CH 1/10W 3.6K	1	
C30	VCEA1JBK270	E.CAPACITOR 63V 27U	1		R39	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C32	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R40	ERJ6GEYG133	M.RESISTOR CH 1/10W 13K	1	
C40	VCF01AP102	P.CAPACITOR 100V 1200P	1		R41	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1	
C41	ECUM1H104ZFM	C.CAPACITOR CH 50V 0.1U	1		R42	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C42	ECJ2VB1H562K	C.CAPACITOR CH 50V 5600P	1		R43,44	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2	
					R45	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
CN1	VJP3440A020	CONNECTOR (MALE)	1	K1KA20A00187	R46	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
CN2	VJP1603T	CONNECTOR (MALE)	1	K1KA10A00138	R48	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
CN3	VJP1942	CONNECTOR (MALE)	1		R50	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN4	VJP1603T	CONNECTOR (MALE)	1	K1KA10A00138	R51	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
CN5	VJP4292	CONNECTOR (MALE)	1		R52	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN6	VJP1230T	CONNECTOR (MALE) 3P	1	K1KA03A00017	R54	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
					R55	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	1	
CP1-P4	VJR1072	TEST POINT	4		R58	ERJ8GEYJ2R2	M.RESISTOR CH 1/8W 2.2	1	
					R59	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
D1	SC80204TE12R	DIODE	1		R60	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
D2,D3	DAP202U	DIODE	2		R61,62	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	2	
D4	1SS302	DIODE	1		R63	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
D5	DAN202U	DIODE	1		R65	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
D6,D7	RLS245	DIODE	2		R66	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
D8	DAN202U	DIODE	1		R67	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
D9	ESJA57-04A	DIODE	1		R68	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
D10	RLS245	DIODE	1		R69	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	1	
D13	RLS245	DIODE	1		R70	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
					R71	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
E1	VJR1072	TEST POINT	1		R72-74	ERJ6GEYG335	M.RESISTOR CH 1/10W 3.3M	3	
					R75	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
FBT	VLT0950	FLYBACK TRANSFORMER	1		R76	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	1	
					R77	ERJ6GEYG680	M.RESISTOR CH 1/10W 68	1	
HLC	VLQ0889	COIL	1		R78	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
					R80	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
IC1	TC74HC164AF	IC	1		R81	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	

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R101	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1		R13	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	1	
R104,05	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	2		R14	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1	
R110	WAZC-58-800	CHIP PROTECTOR	1		R15	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
R111	ERJ6GEYGL01	M.RESISTOR CH 1/10W 100	1		R16	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1	
R113	RDRN05331F2E	M.RESISTOR CH 1/4W 330	1		R17	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
					R18	ERJ6GEYG224	M.RESISTOR CH 1/10W 220K	1	
RV1	VRV0303B102	V.RESISTOR 1K	1		R19	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
RV3	VRV0303B502	V.RESISTOR 5K	1		R20	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
RV5	VRV0303B103	V.RESISTOR 10K	1		R21	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
RV6	VRV0303B502	V.RESISTOR 5K	1		R22	ERJ6GEYG302	M.RESISTOR CH 1/10W 3K	1	
RV7	VRV0303B101	V.RESISTOR 100	1		R23	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
					R24	ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
S2	VST0332	SWITCH	1		R25	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
S3	VST0333	SWITCH	1		R26	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
					R27	ERJ6GEYJ4R7	M.RESISTOR CH 1/10W 4.7K	1	
		MISCELLANEOUS			R28	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
					R29	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
	VSC4926	SHIELD CASE	1		R30	ERJ6GEYGL04	M.RESISTOR CH 1/10W 100K	1	
					R31	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	1	
					R32	ERJ6GEYGL04	M.RESISTOR CH 1/10W 470	1	
					R33	ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
					R34	ERJ6GEYGL04	M.RESISTOR CH 1/10W 470	1	
					R35	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
 E2	VEP20781B	SUB 2 P.C.BOARD	1 (RTL)		R36	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
C1	VCS1VQ105	T.CAPACITOR CH 35V 1U	1		RV1,V2	EVML1GA00B53	V.RESISTOR 5K	2	
C2-C4	VCS1DQ106	T.CAPACITOR CH 20V 10U	3		RV3-V5	EVML1GA00B52	V.RESISTOR 500	3	
C5,C6	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2						
C7,C8	VCS1DQ106	T.CAPACITOR CH 20V 10U	2				MISCELLANEOUS		
C9	VCS1VQ105	T.CAPACITOR CH 35V 1U	1			VMP6012	P.C. BOARD STAY	1	
C10	ECUX1H682KBN	C.CAPACITOR CH 50V 6800P	1			XSB2+4FC	SCREW	2	
C12	ECU1C472J5	P.CAPACITOR 16V 4700P	1						
C13	ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1		 E3	VEP20782B	SUB 2 P.C.BOARD	1 (RTL)	
C14,15	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2						
C16,17	VCS1VQ105	T.CAPACITOR CH 35V 1U	2		C1,C2	VCS1DQ106	T.CAPACITOR CH 20V 10U	2	
C18	WBCC01101J1H	C.CAPACITOR CH 50V 100P	1		C3	VCS1AQ226	T.CAPACITOR CH 10V 22U	1	
C19	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1		C4	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C20	VCEV1CBJ101	E.CAPACITOR 16V 100U	1		C5	VCS1DQ106	T.CAPACITOR CH 20V 10U	1	
C21	ECJ2VC1H221J	C.CAPACITOR CH 50V 220P	1		C6	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C22	ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1		C7	VCS1DQ475	T.CAPACITOR CH 20V 4.7U	1	
C23	VCS1DQ335	T.CAPACITOR CH 20V 3.3U	1		C8	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	1	
C24	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1		C9,10	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C25	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		C11	VCS1DQ475	T.CAPACITOR CH 20V 4.7U	1	
C26	ECJ2VB1H562K	C.CAPACITOR CH 50V 5600P	1		C12	VCS1DQ106	T.CAPACITOR CH 20V 10U	1	
C27	VCEV1CBL471	E.CAPACITOR 16V 470U	1		C13	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1	
C28	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1		C14,15	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	2	
CN21	VJP1614	CONNECTOR (MALE)	1		CN31	VJP1943	CONNECTOR (MALE)	1	
CN22	VJP1843	CONNECTOR (MALE)	1						
CP3	VJR1072	TEST POINT	1		D1,D2	CL200HR-CTUL	DIODE	2	
D1	CL200HR-CTUL	DIODE	1		D3	1SS302	DIODE	1	
D2	DAN202U	DIODE	1		D4	HZK4ALLTR	DIODE	1	
D3	1SS302	DIODE	1		D5	1SS302	DIODE	1	
					D6	HZK9CLTE	DIODE	1	
IC1	HA11423MP	IC	1		DL1	VLD0413	DELAY	1	
Q1,Q2	2SC4081	TRANSISTOR	2		IC1	TC4W66F	IC	1	C0JBRAS000055
Q3	IMZ1	TRANSISTOR-RESISTOR	1		IC2	UPC358G2	IC	1	
Q4	2SK664	TRANSISTOR	1		IC3	TC4W53F	IC	1	C0JBAR000225
R1	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1		L1	VLQ0892	COIL	1	
R2	ERJ6GEYG474	M.RESISTOR CH 1/10W 470K	1						
R3	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1		Q1,Q2	2SC4081	TRANSISTOR	2	
R4	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	1		Q3-Q7	2SC4178	TRANSISTOR	5	
R5	ERJ6GEYG273	M.RESISTOR CH 1/10W 27K	1		Q8-10	2SC4102	TRANSISTOR	3	
R6	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1		Q11	2SA1579	TRANSISTOR	1	
R7	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1						
R8	ERJ6GEYGL01	M.RESISTOR CH 1/10W 100	1		R1	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R9	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1		R2	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
R10	ERJ6GEYGL21	M.RESISTOR CH 1/10W 120	1		R3	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1	
R11	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1		R4	ERJ6GEYG273	M.RESISTOR CH 1/10W 27K	1	
R12	ERJ6GEYG683	M.RESISTOR CH 1/10W 68K	1						






Components identified with the mark  have special characteristics for safety.  
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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R5	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
R6	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
R7	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
R8-10	ERJ6GEYG511	M.RESISTOR CH 1/10W 510	3	
R11,12	ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	2	
R13	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	1	
R14	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
R15	ERJ6GEYG511	M.RESISTOR CH 1/10W 510	1	
R16,17	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	2	
R18	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1	
R19	ERJ6GEYG361	M.RESISTOR CH 1/10W 360	1	
R20	ERJ6GEYG511	M.RESISTOR CH 1/10W 510	1	
R21	ERJ6GEYG302	M.RESISTOR CH 1/10W 3K	1	
R22	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
R23,24	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2	
R25	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
R26	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
R27	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	1	
R28	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
R29	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
R30	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
R31	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1	
R32	ERJ6GEYG821	M.RESISTOR CH 1/10W 820	1	
R33	ERJ6GEYG162	M.RESISTOR CH 1/10W 1.6K	1	
R34	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
R35	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	1	
R36	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	1	
R37	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
R38	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1	
R39	ERJ6GEYG563	M.RESISTOR CH 1/10W 56K	1	
R40	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	1	
R41	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
R42	ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	1	
R43	ERJ6GEYG563	M.RESISTOR CH 1/10W 56K	1	
R44	RDRN05103F2E	M.RESISTOR CH 1/4W 0.01U	1	
R45	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
R52	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1	
RV1	VRV0305B202	V.RESISTOR 2K	1	
RV2	EVML1GA00B52	V.RESISTOR 500	1	
RV3	VRV0305B502	V.RESISTOR 5K	1	
RV4	EVML1GA00B15	V.RESISTOR 100K	1	
RV5	VRV0305B103	V.RESISTOR 10K	1	
■ E4	VEP20783	LED P.C.BOARD	1 (RTL)	
CN41	VJP1603T	CONNECTOR (MALE)	1 K1KA10A00138	
D1	CL-150UR-CD	LED	1	
D2	CL-150D-CD	LED	1	
D3	CL-150UR-CD	LED	1	
D4,D5	DATQ111150PG	LED	2	
D6	CL-150D-CD	LED	1	
D9	DATQ111150PG	LED	1	



## ELECTRICAL REPLACEMENT PARTS LIST

### AJ-VF15BE

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
 E1	VEP20780D	MAIN P.C.BOARD	1	(RTL)	IC2	TC74HC08AF	IC	1	C0JBAA000084
					IC3	C0JBAB000180	IC	1	
 E2	VEP20781D	SUB 1 P.C.BOARD	1	(RTL)	IC4	M66311FP	IC	1	C0HBZ0000021
					IC5	TL1453CNS	IC	1	
 E3	VEP20782B	SUB 2 P.C.BOARD	1	(RTL)	IC6	TC4S01F	IC	1	
					IC7	TC4W53F	IC	1	C0JBAR000225
 E4	VEP20783	LED P.C.BOARD	1	(RTL)	IC9	UPC358G2	IC	1	
					IC10	TC4S69F	IC	1	C0JBAB000139
					IC12	LM4041EIM312	DIODE	1	
					L1	VLQ0891	COIL	1	
					L3	VLQ0891	COIL	1	
					Q1	2SC4081	TRANSISTOR	1	
					Q2	2SJ245S	TRANSISTOR	1	
					Q3	2SA1579	TRANSISTOR	1	
					Q4	2SB1132	TRANSISTOR	1	
					Q5,Q6	2SK1254	TRANSISTOR	2	
 E1	VEP20780D	MAIN P.C.BOARD	1	(RTL)	Q9-12	2SC4081	TRANSISTOR	4	
					Q20	2SC4081	TRANSISTOR	1	
					Q21	2SA1576A	TRANSISTOR	1	
C1	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R1	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
C2	VCS1AQ226	T.CAPACITOR CH 10V 22U	1		R2	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
C3	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R3	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
C4	VCEV1EBL331	E.CAPACITOR 25V 330U	1		R4	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
C5	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R5	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C6	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	1		R6	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C7	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R7	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C8	ECUM1H391JCN	C.CAPACITOR CH 50V 390P	1		R9	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C9	VCEA1CBG101	E.CAPACITOR 16V 100U	1		R11	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C13	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R17,18	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	2	
C14	VCS1DQ335	T.CAPACITOR CH 20V 3.3U	1		R20,21	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	2	
C15	VCS1CQ107	T.CAPACITOR CH 16V 100U	1		R22-24	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	3	
C16	ECJ2VC1H221J	C.CAPACITOR CH 50V 220P	1		R25-27	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	3	
C18	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R28	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
C19	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1		R29	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1	
C20	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1		R30,31	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	2	
C21	ECUM1H473KBN	C.CAPACITOR CH 50V 0.047U	1		R32	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C24	VCF01AP822	P.CAPACITOR 100V 8200P	1		R33-35	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	3	
C26	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1		R36	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
C27	VCS1DQ475	T.CAPACITOR CH 20V 4.7U	1		R37	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C28	VCK0302	C.CAPACITOR 1000V 470P	1		R38	ERJ6GEYG362	M.RESISTOR CH 1/10W 3.6K	1	
C29	VCEV1HBB4R7	E.CAPACITOR 50V 4.7U	1		R39	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C30	VCEA1JBK270	E.CAPACITOR 63V 27U	1		R40	ERJ6GEYG133	M.RESISTOR CH 1/10W 13K	1	
C32	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R41	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1	
C40	VCF01AP102	P.CAPACITOR 100V 1200P	1		R42	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C41	ECUM1H104ZFM	C.CAPACITOR CH 50V 0.1U	1		R43,44	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2	
C42	ECJ2VB1H562K	C.CAPACITOR CH 50V 5600P	1		R45	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
					R46	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
CN1	VJP3440A020	CONNECTOR (MALE)	1	K1KA20A00187	R48	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
CN2	VJP1603T	CONNECTOR (MALE)	1	K1KA10A00138	R50	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN3	VJP1942	CONNECTOR (MALE)	1		R51	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
CN4	VJP1603T	CONNECTOR (MALE)	1	K1KA10A00138	R52	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN5	VJP4292	CONNECTOR (MALE)	1		R54	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
CN6	VJP1230T	CONNECTOR (MALE) 3P	1	K1KA03A00017	R55	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	1	
					R58	ERJ8GEYJ2R2	M.RESISTOR CH 1/8W 2.2	1	
CP1-P4	VJR1072	TEST POINT	4		R59	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
					R60	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
D1	SC80204TE12R	DIODE	1		R61,62	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	2	
D2,D3	DAP202U	DIODE	2		R63	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
D4	1SS302	DIODE	1		R65	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
D5	DAN202U	DIODE	1		R66	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
D6,D7	RLS245	DIODE	2		R67	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
D8	DAN202U	DIODE	1		R68	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
D9	ESJA57-04A	DIODE	1		R69	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	1	
D10	RLS245	DIODE	1		R70	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
D13	RLS245	DIODE	1		R71	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
					R72-74	ERJ6GEYG335	M.RESISTOR CH 1/10W 3.3M	3	
E1	VJR1072	TEST POINT	1		R75	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
					R76	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	1	
FBT	VLT0950	FLYBACK TRANSFORMER	1		R77	ERJ6GEYG680	M.RESISTOR CH 1/10W 68	1	
					R78	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
HLC	VLQ0889	COIL	1		R80	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
					R81	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
IC1	TC74HC164AF	IC	1						

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R101	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1		R13	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	1	
R104,05	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2		R14	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1	
R110	WAZC-58-800	CHIP PROTECTOR	1		R15	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
R111	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1		R16	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1	
R113	RDRN05331P2E	M.RESISTOR CH 1/4W 330	1		R17	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
					R18	ERJ6GEYG224	M.RESISTOR CH 1/10W 220K	1	
RV1	VRV0303B102	V.RESISTOR 1K	1		R19	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
RV3	VRV0303B502	V.RESISTOR 5K	1		R20	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
RV5	VRV0303B103	V.RESISTOR 10K	1		R21	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
RV6	VRV0303B502	V.RESISTOR 5K	1		R22	ERJ6GEYG302	M.RESISTOR CH 1/10W 3K	1	
RV7	VRV0303B101	V.RESISTOR 100	1		R23	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
					R24	ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
S2	VST0332	SWITCH	1		R25	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
S3	VST0333	SWITCH	1		R26	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
		MISCELLANEOUS			R27	ERJ6GEYJ4R7	M.RESISTOR CH 1/10W 4.7K	1	
					R28	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
					R29	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
	VSC4926	SHIELD CASE	1		R30	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
					R31	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	1	
					R32	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
					R33	ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
					R34	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
					R35	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
■ E2	VEP20781D	SUB 1 P.C.BOARD	1 (RTL)		R36	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
C1	VCSI1VQ105	T.CAPACITOR CH 35V 1U	1		RV1,V2	EVML1GA00B53	V.RESISTOR 5K	2	
C2-C4	VCSI1DQ106	T.CAPACITOR CH 20V 10U	3		RV3-V5	EVML1GA00B52	V.RESISTOR 500	3	
C5,C6	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2				MISCELLANEOUS		
C7,C8	VCSI1DQ106	T.CAPACITOR CH 20V 10U	2						
C9	VCSI1VQ105	T.CAPACITOR CH 35V 1U	1			VMP6012	P.C.BOARD STAY	1	
C10	ECUX1H682KBN	C.CAPACITOR CH 50V 6800P	1			XSB2+4FC	SCREW	2	
C12	ECHULC472J5	P.CAPACITOR 16V 4700P	1						
C13	ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1						
C14,15	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2						
C16,17	VCSI1VQ105	T.CAPACITOR CH 35V 1U	2						
C18	WBCC01101J1H	C.CAPACITOR CH 50V 100P	1						
C19	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1		■ E3	VEP20782B	SUB 2 P.C.BOARD	1 (RTL)	
C20	VCEV1CBJ101	E.CAPACITOR 16V 100U	1						
C21	ECJ2VFC1H221J	C.CAPACITOR CH 50V 220P	1						
C22	ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1						
C23	VCSI1DQ335	T.CAPACITOR CH 20V 3.3U	1		C1,C2	VCSI1DQ106	T.CAPACITOR CH 20V 10U	2	
C24	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1		C3	VCSI1AQ226	T.CAPACITOR CH 10V 22U	1	
C25	VCSI1DQ106	T.CAPACITOR CH 20V 10U	1		C4	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C26	ECJ2VB1H562K	C.CAPACITOR CH 50V 5600P	1		C5	VCSI1DQ106	T.CAPACITOR CH 20V 10U	1	
C27	VCEV1CBL471	E.CAPACITOR 16V 470U	1		C6	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C28	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1		C7	VCSI1DQ475	T.CAPACITOR CH 20V 4.7U	1	
					C8	ECJ2VFC1C05Z	C.CAPACITOR CH 16V 1U	1	
					C9,10	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
CN21	VJP1614	CONNECTOR (MALE)	1		C11	VCSI1DQ475	T.CAPACITOR CH 20V 4.7U	1	
CN22	VJP1843	CONNECTOR (MALE)	1		C12	VCSI1DQ106	T.CAPACITOR CH 20V 10U	1	
					C13	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1	
CP3	VJR1072	TEST POINT	1		C14,15	ECJ2VFC1C05Z	C.CAPACITOR CH 16V 1U	2	
D1	CL200HR-CTUL	DIODE	1		CN31	VJP1943	CONNECTOR (MALE)	1	
D2	DAN202U	DIODE	1						
D3	1SS302	DIODE	1		D1,D2	CL200HR-CTUL	DIODE	2	
					D3	1SS302	DIODE	1	
IC1	HA11423MP	IC	1		D4	HZK4ALLTR	DIODE	1	
					D5	1SS302	DIODE	1	
Q1,Q2	2SC4081	TRANSISTOR	2		D6	HZK9CLTR	DIODE	1	
Q3	1M21	TRANSISTOR-RESISTOR	1						
Q4	2SK664	TRANSISTOR	1		DL1	VLD0413	DELAY	1	
R1	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1		IC1	TC4W66F	IC	1	C0JBAS000055
R2	ERJ6GEYG474	M.RESISTOR CH 1/10W 470K	1		IC2	UPC358G2	IC	1	
R3	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1		IC3	TC4W53F	IC	1	C0JBAR000225
R4	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	1						
R5	ERJ6GEYG273	M.RESISTOR CH 1/10W 27K	1						
R6	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1		L1	VLQ0892	COIL	1	
R7	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1						
R8	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1		Q1,Q2	2SC4081	TRANSISTOR	2	
R9	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1		Q3-Q7	2SC4178	TRANSISTOR	5	
R10	ERJ6GEYG121	M.RESISTOR CH 1/10W 120	1		Q8-10	2SC4102	TRANSISTOR	3	
R11	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1		Q11	2SA1579	TRANSISTOR	1	
R12	ERJ6GEYG683	M.RESISTOR CH 1/10W 68K	1						
					R1	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R2	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1						
R3	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1						
R4	ERJ6GEYG273	M.RESISTOR CH 1/10W 27K	1						
R5	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1						
R6	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1						
R7	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1						
R8-10	ERJ6GEYG511	M.RESISTOR CH 1/10W 510	3						
R11,12	ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	2						
R13	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	1						
R14	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1						
R15	ERJ6GEYG511	M.RESISTOR CH 1/10W 510	1						
R16,17	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	2						
R18	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1						
R19	ERJ6GEYG361	M.RESISTOR CH 1/10W 360	1						
R20	ERJ6GEYG511	M.RESISTOR CH 1/10W 510	1						
R21	ERJ6GEYG302	M.RESISTOR CH 1/10W 3K	1						
R22	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1						
R23,24	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2						
R25	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1						
R26	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1						
R27	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	1						
R28	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1						
R29	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1						
R30	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1						
R31	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1						
R32	ERJ6GEYG821	M.RESISTOR CH 1/10W 820	1						
R33	ERJ6GEYG162	M.RESISTOR CH 1/10W 1.6K	1						
R34	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1						
R35	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	1						
R36	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	1						
R37	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1						
R38	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1						
R39	ERJ6GEYG563	M.RESISTOR CH 1/10W 56K	1						
R40	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	1						
R41	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1						
R42	ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	1						
R43	ERJ6GEYG563	M.RESISTOR CH 1/10W 56K	1						
R44	RDRN05103F2E	M.RESISTOR CH 1/4W 0.01U	1						
R45	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1						
R52	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1						
RV1	VRV0305B202	V.RESISTOR 2K	1						
RV2	EVML1GA00B52	V.RESISTOR 500	1						
RV3	VRV0305B502	V.RESISTOR 5K	1						
RV4	EVML1GA00B15	V.RESISTOR 100K	1						
RV5	VRV0305B103	V.RESISTOR 10K	1						
■ E4	VEP20783	LED P.C.BOARD	1 (RTL)						
CN41	VJFP1603T	CONNECTOR (MALE)	1 K1KA10A00138						
D1	CL-150UR-CD	LED	1						
D2	CL-150D-CD	LED	1						
D3	CL-150UR-CD	LED	1						
D4,D5	DATQ11150PG	LED	2						
D6	CL-150D-CD	LED	1						
D9	DATQ11150PG	LED	1						

# ELECTRICAL REPLACEMENT PARTS LIST

## AJ-VF20WBP

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
 E1	VEP20780A	MAIN P.C.BOARD	1	(RTL)	IC1	TC74HC164AF	IC	1	
 E2	VEP20781A	SUB 1 P.C.BOARD	1	(RTL)	IC2	TC74HC08AF	IC	1	C0JBAA000084
 E3	VEP20782A	SUB 2 P.C.BOARD	1	(RTL)	IC3	C0JBAB000180	IC	1	
 E4	VEP20783	LED P.C.BOARD	1	(RTL)	IC4	M66311FP	IC	1	COHBZ0000021
					IC5	TL1453CNS	IC	1	
					IC6	TC4S01F	IC	1	
					IC7,C8	TC4W53F	IC	2	C0JBAR000225
					IC9	UPC358G2	IC	1	
					IC10,11	TC4S69F	IC	2	C0JBAB000139
					IC12	LM4041EIM312	DIODE	1	
					L1	VLQ0891	COIL	1	
					L2	VLQ0890	COIL	1	
					L3	VLQ0891	COIL	1	
					Q1	2SC4081	TRANSISTOR	1	
					Q2	2SJ245S	TRANSISTOR	1	
					Q3	2SA1579	TRANSISTOR	1	
					Q4	2SB1132	TRANSISTOR	1	
					Q5-Q8	2SK1254	TRANSISTOR	4	
					Q9-11	2SC4081	TRANSISTOR	3	
					Q15	2SC4081	TRANSISTOR	1	
					Q20	2SC4081	TRANSISTOR	1	
					Q21	2SA1576A	TRANSISTOR	1	
 E1	VEP20780A	MAIN P.C.BOARD	1	(RTL)					
C1	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R1	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
C2	VCS1AQ226	T.CAPACITOR CH 10V 22U	1		R2	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
C3	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R3	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
C4	VCEV1EBL331	E.CAPACITOR 25V 330U	1		R4	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
C5	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R5	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C6	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	1		R6	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C7	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R7	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C8	ECUM1H391JCN	C.CAPACITOR CH 50V 390P	1	F1J1H391A025	R9	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C9	VCEA1CBG101	E.CAPACITOR 16V 100U	1		R11	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C13	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R17,18	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	2	
C14	VCS1DQ335	T.CAPACITOR CH 20V 3.3U	1		R20,21	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	2	
C15	VCS1CQ107	T.CAPACITOR CH 16V 100U	1		R22-24	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	3	
C16	ECJ2VC1H221J	C.CAPACITOR CH 50V 220P	1		R25-27	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	3	
C18	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R28	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
C19	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1		R29	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1	
C20,21	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2		R30,31	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	2	
C24	VCF01AP103	P.CAPACITOR 10V 0.01U	1		R32	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C25	VCF01AP562	P.CAPACITOR 10V 5600P	1		R33-35	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	3	
C26	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1		R36	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
C27	VCS1DQ475	T.CAPACITOR CH 20V 4.7U	1		R37	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C28	VCK0302	C.CAPACITOR 1000V 470P	1		R38	ERJ6GEYG362	M.RESISTOR CH 1/10W 3.6K	1	
C29	VCEV1HBB4R7	E.CAPACITOR 50V 4.7U	1		R39	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
C30	VCEA1JBK270	E.CAPACITOR 63V 27U	1		R40	ERJ6GEYG133	M.RESISTOR CH 1/10W 13K	1	D0GD133JA003
C31	VCS1DQ476	T.CAPACITOR CH 20V 47U	1		R41	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1	
C32	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R42	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C40	PECQ02202J2A	P.CAPACITOR 100V 2000P	1		R43,44	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2	
C41	ECUM1H104ZFM	C.CAPACITOR CH 50V 0.1U	1	F1K1H1040015	R45	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
C42	ECJ2VB1H562K	C.CAPACITOR CH 50V 5600P	1		R46	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
					R48	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
					R49	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN1	VJP3440A020	CONNECTOR (MALE)	1	K1KA20A00187	R51	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
CN2	VJP1603T	CONNECTOR (MALE)	1	K1KA10A00138	R52	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN3	VJP1942	CONNECTOR (MALE)	1		R54	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
CN4	VJP1603T	CONNECTOR (MALE)	1	K1KA10A00138	R55	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	1	
CN5	VJP4292	CONNECTOR (MALE)	1		R56	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
CN6	VJP1230T	CONNECTOR (MALE)	3P	K1KA03A00017	R57	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	1	
					R58	ERJ8GEYJ1R2	M.RESISTOR CH 1/8W 1.2K	1	
CP1-P4	VJR1072	TEST POINT	4		R60	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
					R61,62	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	2	
D1	SC80204TE12R	DIODE	1		R63	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
D2,D3	DAP202U	DIODE	2		R65	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
D4	1SS302	DIODE	1		R66	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
D5	DAN202U	DIODE	1		R67	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
D6,D7	RLS245	DIODE	2		R68	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
D8	DAN202U	DIODE	1		R69	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	1	
D9	ESJA57-04A	DIODE	1		R70	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
D10	RLS245	DIODE	1		R71	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1	
D13	RLS245	DIODE	1		R72-74	ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	3	
E1	VJR1072	TEST POINT	1		R75	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
					R76	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	1	
FBT	VLT0949	FLYBACK TRANSFORMER	1						
HLC	VLQ0889	COIL	1						

Components identified with the mark  have special characteristics for safety.  
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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R77	ERJ6GEYG680	M.RESISTOR CH 1/10W 68	1		R12	ERJ6GEYG683	M.RESISTOR CH 1/10W 68K	1	
R78	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1		R13	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	1	
R80	ERJ6GEYGI02	M.RESISTOR CH 1/10W 1K	1		R14	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1	
R81	ERJ6GEYJ5R6	M.RESISTOR CH 1/10W 5.6	1		R15	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
R101	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1		R16	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	1	
R104,05	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	2		R17	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
R110	WAZC-58-800	CHIP PROTECTOR	1		R18	ERJ6GEYG224	M.RESISTOR CH 1/10W 220K	1	
R111	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	1		R19	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
R113	RDRN05331F2E	M.RESISTOR CH 1/4W 330	1		R20	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	1	
					R21	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
RV1	VRV0303B102	V.RESISTOR 1K	1		R22	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	1	
RV3,V4	VRV0303B502	V.RESISTOR 5K	2		R23	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
RV5	VRV0303B103	V.RESISTOR 10K	1		R24	ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
RV6	VRV0303B502	V.RESISTOR 5K	1		R25	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
RV7,V8	VRV0303B101	V.RESISTOR 100	2		R26	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
					R27	ERJ6GEYJ4R7	M.RESISTOR CH 1/10W 4.7K	1	
S2	VST0332	SWITCH	1		R28	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
S3	VST0333	SWITCH	1		R29	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
					R30	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
		MISCELLANEOUS			R31	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	1	
					R32	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
	VSC4926	SHIELD CASE	1		R33	ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
					RV1,V2	EVML1GA00B53	V.RESISTOR 5K	2	
					RV3,V4	EVML1GA00B52	V.RESISTOR 500	2	
							MISCELLANEOUS		
						VMP6012	P.C.BOARD STAY	1	
						XSB2+4FC	SCREW	2	

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[illegible]

## ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
					IC1	TC74HC164AF	IC	1	
■ E1	VEP20780C	MAIN P.C.BOARD	1	(RTL)	IC2	TC74HC08AF	IC	1	C0JBAA000084
					IC3	C0JBAB000180	IC	1	
■ E2	VEP20781C	SUB 1 P.C.BOARD	1	(RTL)	IC4	M66311FF	IC	1	C0HBZ0000021
					IC5	TL1453CNS	IC	1	
■ E3	VEP20782A	SUB 2 P.C.BOARD	1	(RTL)	IC6	TC4S01F	IC	1	
					IC7,C8	TC4W53F	IC	2	C0JBAR000225
■ E4	VEP20783	LED P.C.BOARD	1	(RTL)	IC9	UPC358G2	IC	1	
					IC10,11	TC4S69F	IC	2	C0JBAB000139
					IC12	LM4041EIM312	DIODE	1	
					L1	VLQ0891	COIL	1	
					L2	VLQ0890	COIL	1	
					L3	VLQ0891	COIL	1	
					Q1	2SC4081	TRANSISTOR	1	
					Q2	2SJ245S	TRANSISTOR	1	
					Q3	2SA1579	TRANSISTOR	1	
■ E1	VEP20780C	MAIN P.C.BOARD	1	(RTL)	Q4	2SB1132	TRANSISTOR	1	
					Q5-Q8	2SK1254	TRANSISTOR	4	
					Q9-11	2SC4081	TRANSISTOR	3	
C1	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		Q15	2SC4081	TRANSISTOR	1	
C2	VCS1AQ226	T.CAPACITOR CH 10V 22U	1		Q20	2SC4081	TRANSISTOR	1	
C3	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		Q21	2SA1576A	TRANSISTOR	1	
C4	VECV1EBL331	E.CAPACITOR 25V 330U	1						
C5	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R1	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
C6	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	1		R2	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
C7	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R3	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
C8	ECUM1H391JCN	C.CAPACITOR CH 50V 390P	1	F1J1H391A025	R4	ERJ6GEYGL04	M.RESISTOR CH 1/10W 100K	1	
C9	VCEA1CBG101	E.CAPACITOR 16V 100U	1		R5	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C13	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R6	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C14	VCS1DQ335	T.CAPACITOR CH 20V 3.3U	1		R7	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1	
C15	VCS1CQ107	T.CAPACITOR CH 16V 100U	1		R9	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
C16	ECJ2VC1H221J	C.CAPACITOR CH 50V 220P	1		R11	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
C18	ECJ2VB1H103K	C.CAPACITOR CH 50V 0.01U	1		R17,18	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	2	
C19	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1		R20,21	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	2	
C20,21	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2		R22-24	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	3	
C24	VCF01AP103	P.CAPACITOR 10V 0.01U	1		R25-27	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	3	
C25	VCF01AP562	P.CAPACITOR 10V 5600P	1		R28	ERJ6GEYG471	M.RESISTOR CH 1/10W 470	1	
C26	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1		R29	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	1	
C27	VCS1DQ475	T.CAPACITOR CH 20V 4.7U	1		R30,31	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	2	
C28	VCK0302	C.CAPACITOR 1000V 470P	1		R32	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1	
C29	VECV1HBH4R7	E.CAPACITOR 50V 4.7U	1		R33-35	ERJ6GEYGL04	M.RESISTOR CH 1/10W 100K	3	
C30	VCEA1JBK270	E.CAPACITOR 63V 27U	1		R36	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
C31	VCS1DQ476	T.CAPACITOR CH 20V 47U	1		R37	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1	
C32	VCS1DQ106	T.CAPACITOR CH 20V 10U	1		R38	ERJ6GEYG362	M.RESISTOR CH 1/10W 3.6K	1	
C40	PECQ02202J2A	P.CAPACITOR 100V 2000P	1		R39	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1	
C41	ECUM1H104ZFM	C.CAPACITOR CH 50V 0.1U	1	F1K1H1040015	R40	ERJ6GEYG133	M.RESISTOR CH 1/10W 13K	1	D0GD133JA003
C42	ECJ2VB1H562K	C.CAPACITOR CH 50V 5600P	1		R41	ERJ6GEYGL152	M.RESISTOR CH 1/10W 1.5K	1	
					R42	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
CN1	VJP3440A020	CONNECTOR (MALE)		K1KA20A00187	R43,44	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	2	
CN2	VJP1603T	CONNECTOR (MALE)		K1KA10A00138	R45	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
CN3	VJP1942	CONNECTOR (MALE)			R46	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
CN4	VJP1603T	CONNECTOR (MALE)		K1KA10A00138	R48	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
CN5	VJP4292	CONNECTOR (MALE)			R49	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CN6	VJP1230T	CONNECTOR (MALE) 3P		K1KA03A00017	R51	ERJ6GEYGL04	M.RESISTOR CH 1/10W 100K	1	
					R52	ERJ6GEYOR00	M.RESISTOR CH 1/10W 0	1	
CP1-P4	VJR1072	TEST POINT	4		R54	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
					R55	ERJ6GEYGL183	M.RESISTOR CH 1/10W 18K	1	
D1	SC80204TE12R	DIODE	1		R56	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
D2,D3	DAP202U	DIODE	2		R57	ERJ6GEYGL183	M.RESISTOR CH 1/10W 18K	1	
D4	1SS302	DIODE	1		R58	ERJ8GEYJ1R2	M.RESISTOR CH 1/8W 1.2K	1	
D5	DAN202U	DIODE	1		R60	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
D6,D7	RLS245	DIODE	2		R61,62	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	2	
D8	DAN202U	DIODE	1		R63	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
D9	ESJA57-04A	DIODE	1		R65	ERJ6GEYGL104	M.RESISTOR CH 1/10W 100K	1	
D10	RLS245	DIODE	1		R66	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
D13	RLS245	DIODE	1		R67	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
					R68	ERJ6GEYGL03	M.RESISTOR CH 1/10W 10K	1	
E1	VJR1072	TEST POINT	1		R69	ERJ6GEYGL05	M.RESISTOR CH 1/10W 1M	1	
FBT	VLTO949	FLYBACK TRANSFORMER	1		R70	ERJ6GEYGL02	M.RESISTOR CH 1/10W 1K	1	
					R71	ERJ6GEYGL01	M.RESISTOR CH 1/10W 100	1	
HLC	VLQ0889	COIL	1		R72-74	ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	3	
					R75	ERJ6GEYGL04	M.RESISTOR CH 1/10W 100K	1	
					R76	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	1	

Components identified with the mark  have special characteristics for safety.  
When replacing any of these component, use only the same type.

[illegible]



Components identified with the mark  have special characteristics for safety.  
When replacing any of these component, use only the same type.

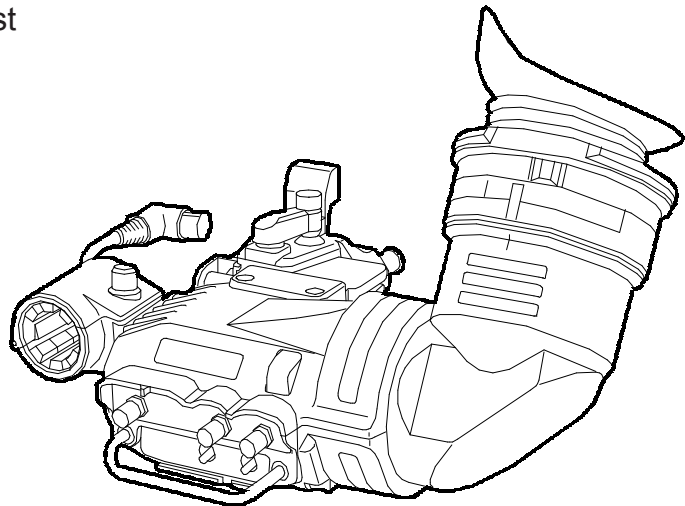
[illegible]

# **Panasonic**

# Service Manual

## 1.5"Electronic View Finder AJ-VF15P/E 2"Electronic View Finder AJ-VF20WP/E

- Sec.1 Operating Instructions
- Sec.2 Disassembly procedures
- Sec.3 Electrical adjustment procedures
- Sec.4 Block Diagrams, Schematic Diagrams & Circuit Board Diagrams
- Sec.5 Exploded Views & Replacement Parts List



### Specifications

<b>Power supply:</b>	DC 12 V (supplied by camera)
<b>Power consumption:</b>	2.1 W (AJ-VF15P, AJ-VF15E) 2.7 W (AJ-VF20WP, AJ-VF20WE)

#### Picture tube:

- 1.5-inch high-resolution monochrome picture tube (AJ-VF15P, AJ-VF15E)
- 2-inch high-resolution monochrome picture tube (AJ-VF20WP, AJ-VF20WE)

#### Horizontal resolution:

- 600 lines (center, typical, 4 : 3 mode)

#### Image system:

- 525 lines, 60 fields (AJ-VF15P, AJ-VF20WP)
- 625 lines, 50 fields (AJ-VF15E, AJ-VF20WE)

#### External adjustment controls:

- Controls (BRIGHT, CONTRAST, PEAKING)
- Switches (TALLY HIGH/OFF/LOW, ZEBRA ON/OFF)

#### Allowable temperature range:

- 32°F to 104°F (0°C to 40°C)

#### Allowable humidity range:

- 85% or less (no condensation)

#### External dimensions (W×H×D):

- 9 1/2"×3 3/16"×8 1/8" (240×80×206 mm)

#### Weight:

- 2.09 lb (950 g)

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# SECTION 1

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## OPERATING INSTRUCTIONS

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## Features

- The high-resolution CRT delivers superb picture sharpness, making focusing easier.
- The low-flare CRT makes the screen clear and easy on the eyes.
- The large eyecup aperture makes it possible to see the screen even when holding the viewfinder at some distance from your eye.
- The eyepiece is easily detachable.
- Easy, one-touch left-right and forward-backward position adjustment.

## Specifications

<b>Power supply:</b>	DC 12 V (supplied by camera)
<b>Power consumption:</b>	2.1 W (AJ-VF15P, AJ-VF15E) 2.7 W (AJ-VF20WP, AJ-VF20WE)

### Picture tube:

- 1.5-inch high-resolution monochrome picture tube (AJ-VF15P, AJ-VF15E)
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### Horizontal resolution:

- 600 lines (center, typical, 4 : 3 mode)

### Image system:

- 525 lines, 60 fields (AJ-VF15P, AJ-VF20WP)
- 625 lines, 50 fields (AJ-VF15E, AJ-VF20WE)

### External adjustment controls:

- Controls (BRIGHT, CONTRAST, PEAKING)
- Switches (TALLY HIGH/OFF/LOW, ZEBRA ON/OFF)

### Allowable temperature range:

- 32°F to 104°F (0°C to 40°C)

### Allowable humidity range:

- 85% or less (no condensation)

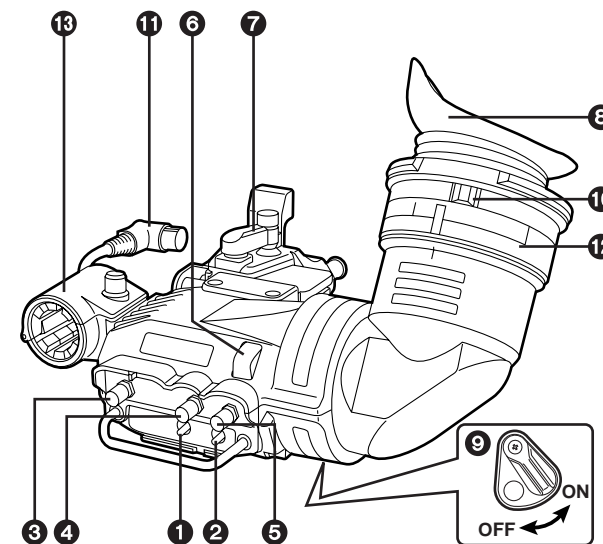
### External dimensions (W×H×D):

- 9 1/2"×3 3/16"×8 1/8" (240×80×206 mm)

### Weight:

- 2.09 lb (950 g)

## Parts and Their Functions



### 1 ZEBRA (Zebra Pattern) Switch

Displays a zebra pattern inside the viewfinder.

**ON:** Displays a zebra pattern.

**OFF:** No zebra pattern displayed.

The details of the display, such as the type of zebra pattern, will differ depending on the camera used with the viewfinder. Refer to the instruction manual of the camera for details.

### 2 TALLY Switch

Controls the front tally lamp.

**HIGH:** Makes the front tally lamp brighter.

**OFF:** Turns the front tally lamp off.

**LOW:** Makes the front tally lamp dimmer.

### 3 PEAKING Knob

Adjusts the outlines of the images in the viewfinder to make focusing easier. The setting of this control has no effect on the output signal of the camera.

### 4 CONTRAST Knob

Adjusts the contrast of the screen inside the viewfinder. The setting of this control has no effect on the output signal of the camera.

## Parts and Their Functions

### 5 BRIGHT (Brightness) Knob

Adjusts the brightness of the screen inside the viewfinder. The setting of this control has no effect on the output signal of the camera.

### 6 Front Tally Lamp

Lights when the VTR is recording and the TALLY switch is set to HIGH or LOW. Also, flashes on and off as a warning indication, in the same manner as the REC lamp, inside the viewfinder.

The brightness of the front tally lamp is controlled by the setting of the TALLY switch (HIGH or LOW).

### 7 Viewfinder Forward-Backward/Left-Right Position Clamp Lever

Loosen this lever to adjust the viewfinder position in the forward, backward, right or left direction.

### 8 Eyecup

### 9 Back Tally Lamp

Lights when the VCR is recording. Also, flashes on and off as a warning indication, in the same manner as the REC lamp inside the viewfinder.

The back tally lamp is hidden when the lever is in the OFF position.

### 10 Diopter Adjustment Ring

Adjust this control to match the vision of the person using the camera so that the image on the screen in the viewfinder is as clear as possible.

### 11 Connection Plug

### 12 Lock Ring

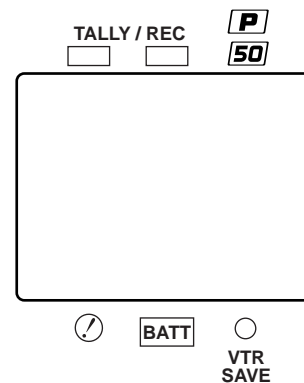
### 13 Microphone Holder

## Parts and Their Functions

### Internal LEDs

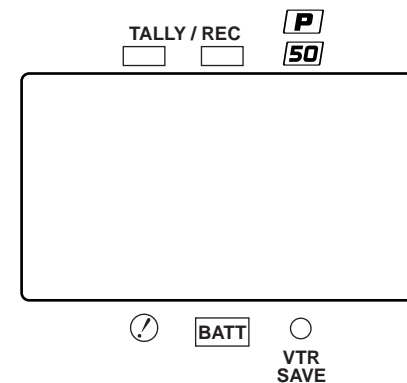
The lamp and picture tube indications will differ depending on the camera used with the viewfinder.

Refer to the instruction manual of the camera for details.



### 4 : 3 Display

AJ-VF15P, AJ-VF15E



### 16 : 9 Display

AJ-VF20WP, AJ-VF20WE

## Adjusting the Viewfinder

### Adjusting the Mounting Height of the Viewfinder

The mounting height of the viewfinder will differ depending on the camera on which it is mounted.

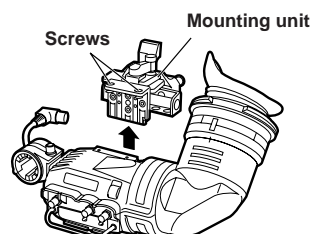
Adjust the mounting height to match the camera on which the viewfinder is to be mounted.

Camera model number		Mounting position
NTSC regions AJ-D810, AJ-D810A, AJ-D900W, AJ-D900WA, AJ-D910WA, AJ-PD900W, AJ-PD900WA	PAL regions AJ-D900W, AJ-D900WA, AJ-D910WA	Factory setting No adjustment of the mounting height is necessary.
NTSC regions AJ-D700, AJ-D700A	PAL regions AJ-D700, AJ-D700A, AJ-D800, AJ-D800A	Change to position <b>A</b>
NTSC regions AQ-23W	PAL regions AQ-23W	Change to position <b>B</b>

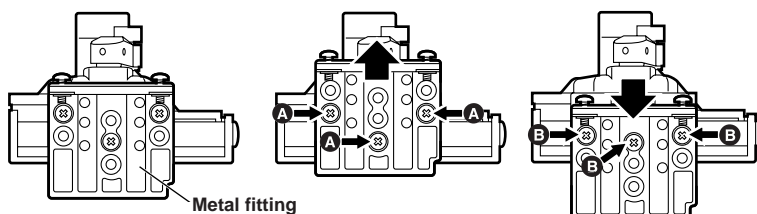
For camera models other than those listed above, please refer to the camera's instruction manual.

#### Adjusting the height of the mounting unit

1. Detach the two screws, the detach the mounting unit.

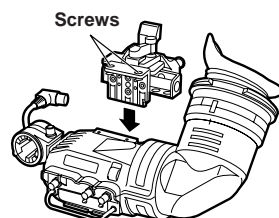


2. Replace the three screws in the positions indicated as **A** or **B** from the present positions and change the position of the metal fitting.



Re-fix the metal fitting by fastening the screws together with the spring washer.

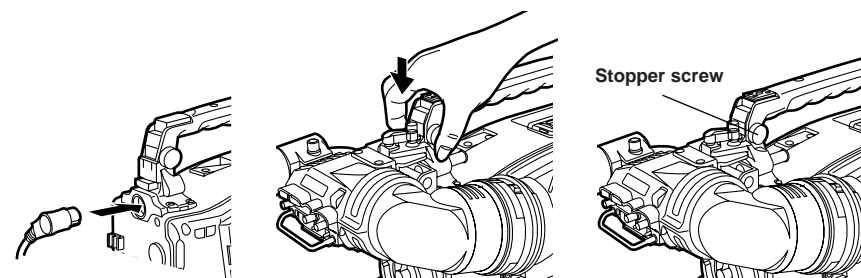
3. Secure the mounting unit in place with the two screws.



## Adjusting the Viewfinder

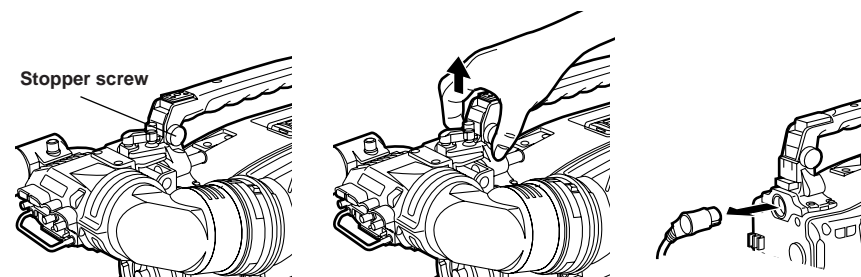
### Mounting the Viewfinder

1. Confirm that the POWER switch of the camera is "OFF".
2. Insert the plug into the connection jack of the viewfinder.  
**<Note>**  
Be sure to insert the plug all the way into the connection jack.
3. Push the viewfinder down into place.
4. Tighten the stopper screw firmly.



### Detaching the Viewfinder

1. Confirm that the POWER switch of the camera is "OFF".
2. Loosen the stopper screw and detach the viewfinder by pulling it straight up.  
**<Note>**  
Use both hands to detach the viewfinder. The viewfinder may not detach smoothly with one hand, resulting in damage to the viewfinder.
3. Disconnect the connection jack from the viewfinder cable connector.

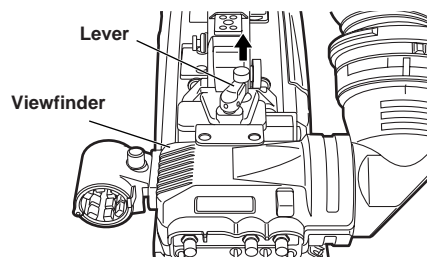




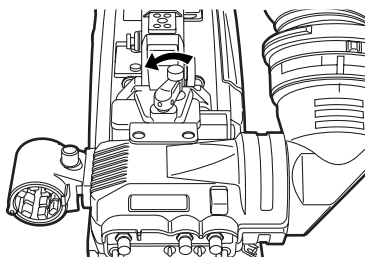
## Adjusting the Viewfinder

### Position Adjustment

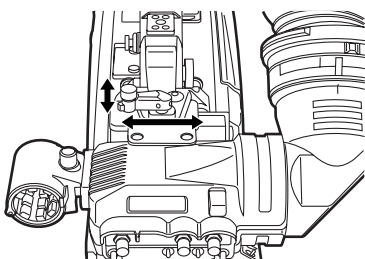
1. Lift up the viewfinder forward-backward/left-right position clamp lever to disengage the lock.



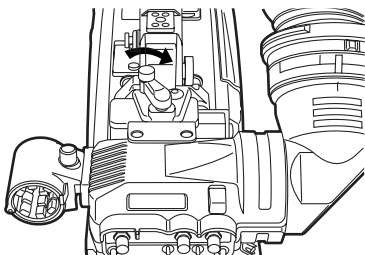
2. Loosen the viewfinder forward-backward/left-right position clamp lever.



3. Adjust the position of the viewfinder by moving it forward, backward, left or right.



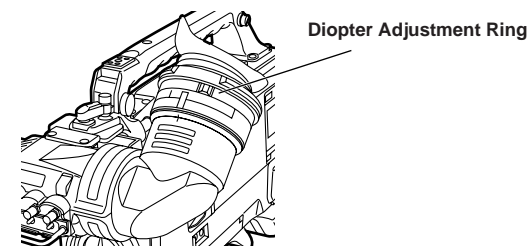
4. Return the viewfinder forward-backward/left-right position clamp lever to the locked position.



## Adjusting the Viewfinder

### Diopter Adjustment

1. Set the POWER switch of the camera to "ON". A picture will appear in the viewfinder.
2. Turn the diopter adjustment ring to adjust the diopter so that the viewfinder picture can be clearly seen.



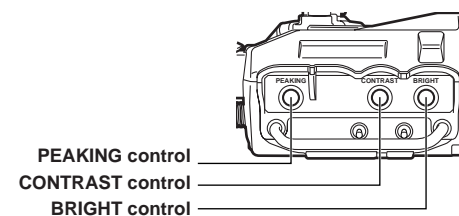
### Screen Adjustment

Adjust the condition of the viewfinder screen.

**Brightness:** Adjust the BRIGHT control.

**Contrast:** Adjust the CONTRAST control.

**Contour:** Adjust the PEAKING control.



1. Set the POWER switch of the camera to "ON".
2. Set the OUTPUT switch of the camera to "BAR".
3. Turn the viewfinder BRIGHT and CONTRAST controls to adjust the picture brightness and contrast.  
Turning the PEAKING control makes the picture appear sharper.  
A sharper picture facilitates focusing the lens.

## Adjusting the Viewfinder

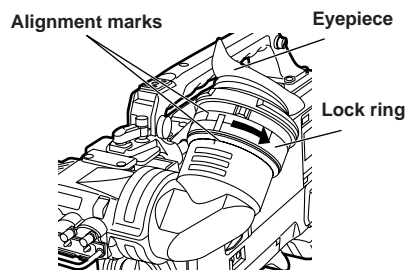
### Detaching the Eyecup

If dust has adhered to the CRT screen or mirror, detach the eyecup and remove it.

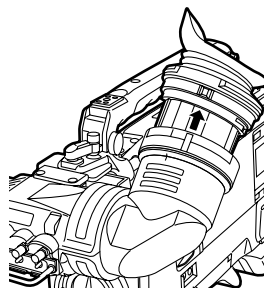
#### <Note>

Do not wipe the mirror surface under any circumstances as it has been specially treated. Dust which has adhered to the mirror should be blown away with a blower, etc.

1. Turn the lock ring as far as possible in the clockwise and counterclockwise directions to line up the alignment marks on the lock ring and viewfinder barrel.

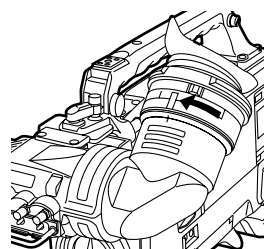


2. Detach the eyecup.



### Remounting the Eyecup

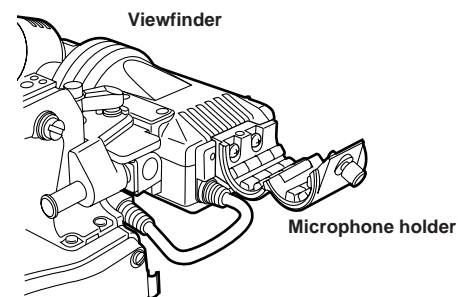
1. Line up the alignment marks on the lock ring and the viewfinder barrel and slide the eyecup back into place.
2. Turn the lock ring clockwise as far as the **◀LOCK** position.



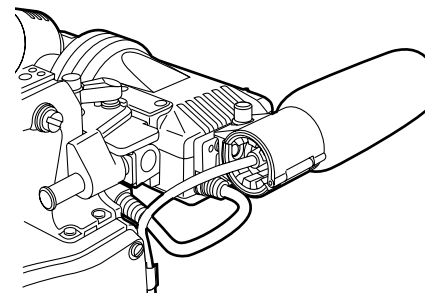
## Mounting the Microphone

Follow the steps below to install the AJ-MC700P microphone kit (sold separately).

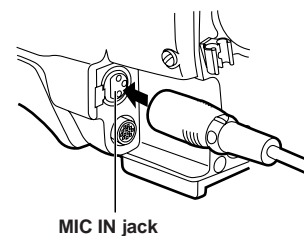
1. Open the microphone holder.



2. Mount the microphone.



3. Plug the microphone connector cable into the MIC IN jack.



# SECTION 2

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## DISASSEMBLY PROCEDURES

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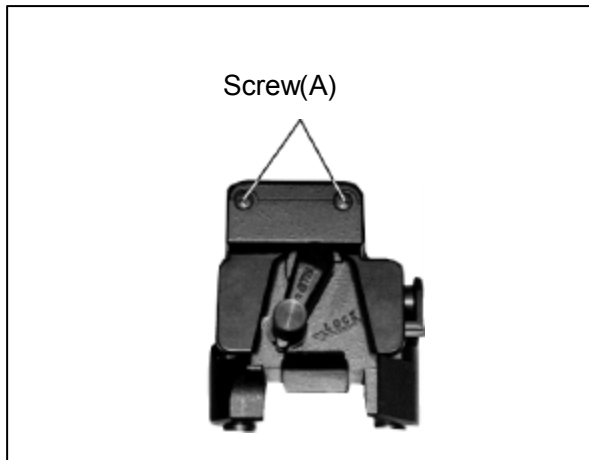
### CONTENTS

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## Disassemble procedures

### 1. Mounting Unit Removal

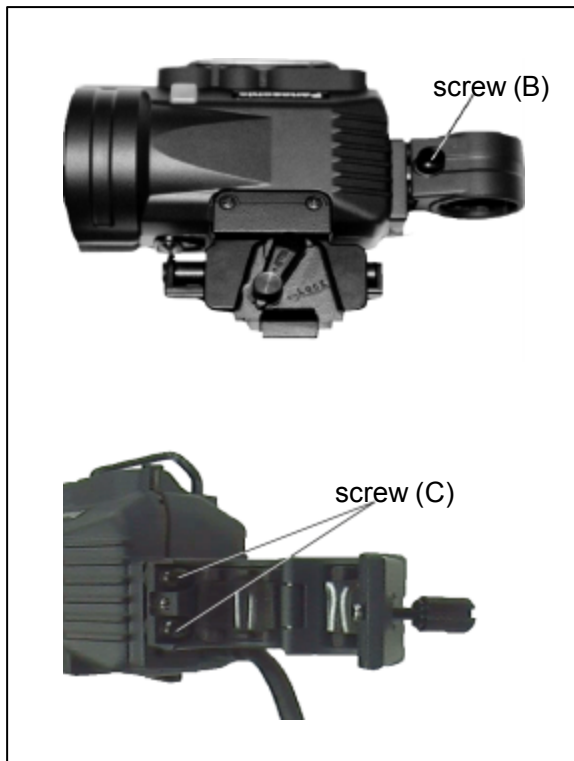
Unscrew 2 screws (A) so that the mounting plate can be removed.



### 2. Microphone Holder Removal

1. Unscrew 1 screw (B) so that the microphone holder can be opened as shown figure below.

2. Unscrew 2 screws (C) so that the microphone holder can be removed.



### 3. Eye Piece Rubber Removal



1. Carefully tear off the portions of the Eye piece.

**Note:** When assembling the eye piece unit, align the markers as shown in the figure above.

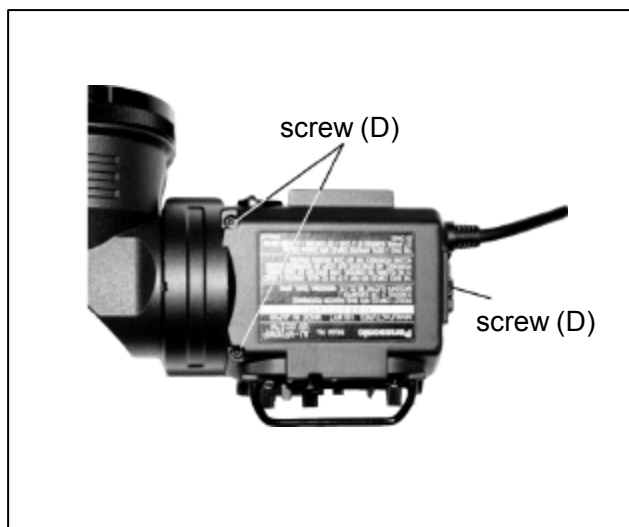
### 4. Eye Piece Unit Removal

1. Rotate the rock rings fully CW direction so that the eye piece unit can be pulled out.



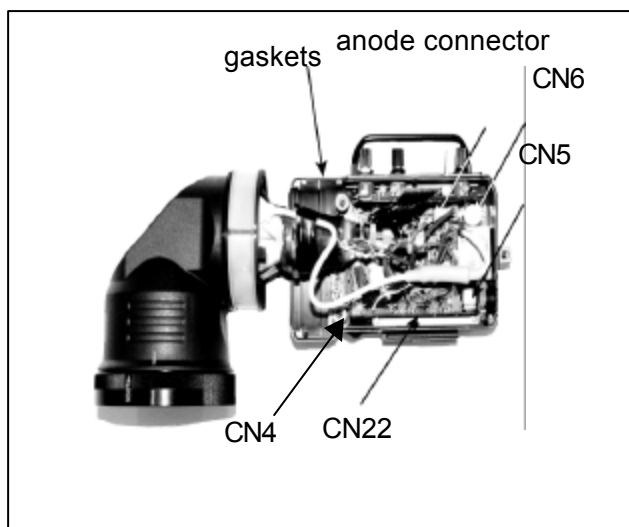
## 5. Upper Case Removal

1. Unscrew 3 screws (D) so that the upper case can be removed.



## 6. Bottom Case Removal

CN22(on Sub 1 P.C.Board)CN4(on Main P.C.Board) CN5 (on Main P.C.Board) CN6 (on Main P.C.Board) And disconnect the CRT anode connector so That the bottom case can be removed.

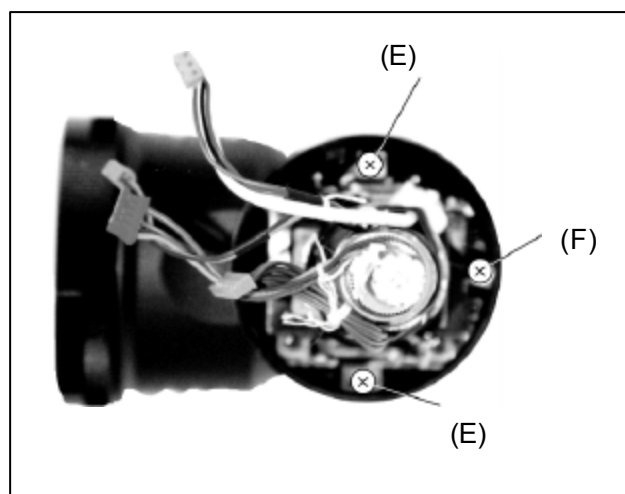


Casualy disconnect the following connectors.

Note: When assembling the case, make sure that the gaskets are not degraded.

## 7. CRT Unit Removal

1. Unscrew 2 screws (E) and 1 screw (F).  
2. Slowly and carefully pullout the CRT unit.



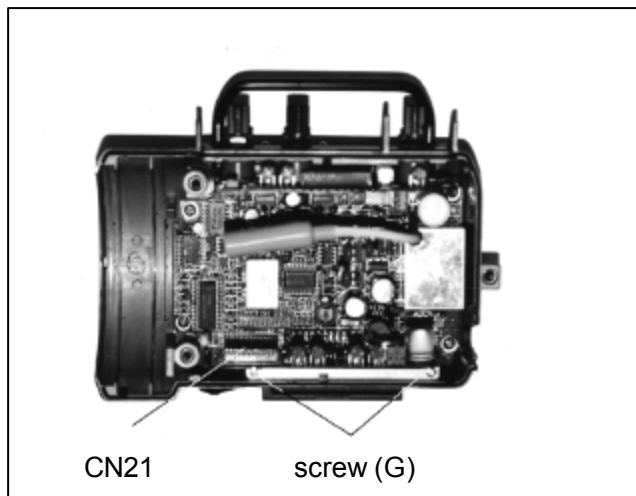
Caution : 1) Do not wipe the surface of the mirror because the special corting has been made on the surface of the mirror. When cleaning the mirror, please use lens blower.



Caution : 2) When assembling the case, make sure that the gasket is not degraded.

## 8. Sub 1 P.C.Board Removal

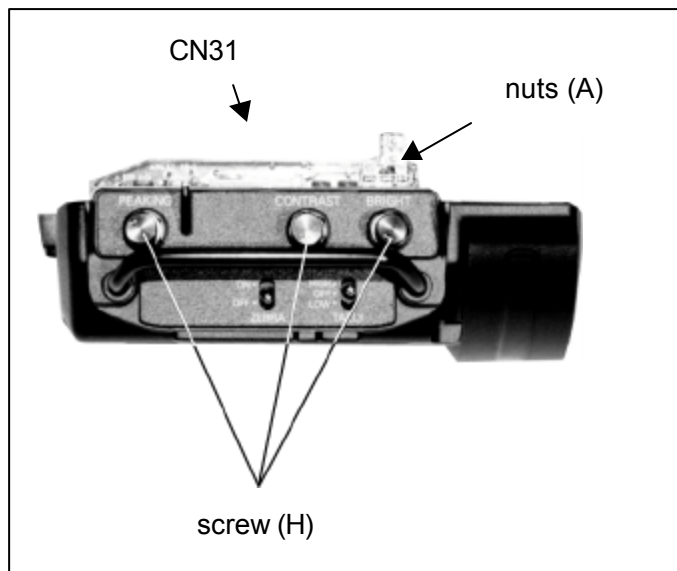
Casually disconnect connector CN21 and unscrew 2 screws (G) so that the Sub 1 P.C.Board can be removed.



## 9. Sub 2 P.C.Board Removal

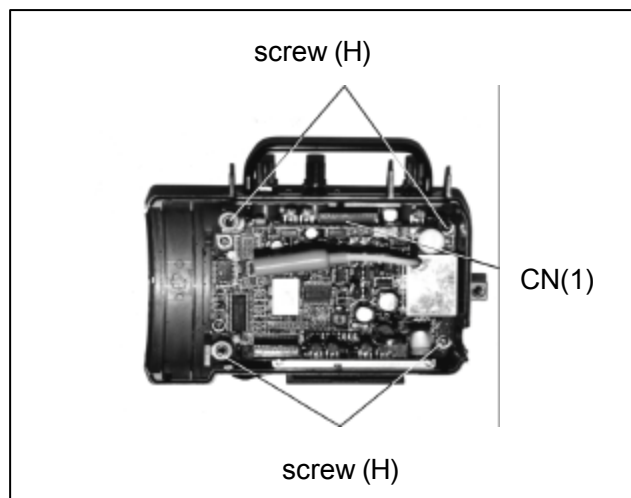
1. Cheerfully disconnect connector CN31.
2. Loosen 3 hex screws on the VR knob and pull out the 3 VR knob.
3. Unscrew 3 nuts (A) so that the sub 2 P.C.Board can be removed.

Note :Do not lose the switch gasket. When assembling the case, make sure that the switch gasket is not degraded.



## 10. MAIN P.C.Board Removal

1. Carefully disconnect connectors (CN1) so that the EVF Cable can be removed.
2. Unscrew 4 screws (H) so that the Main P.C.Board can be removed.

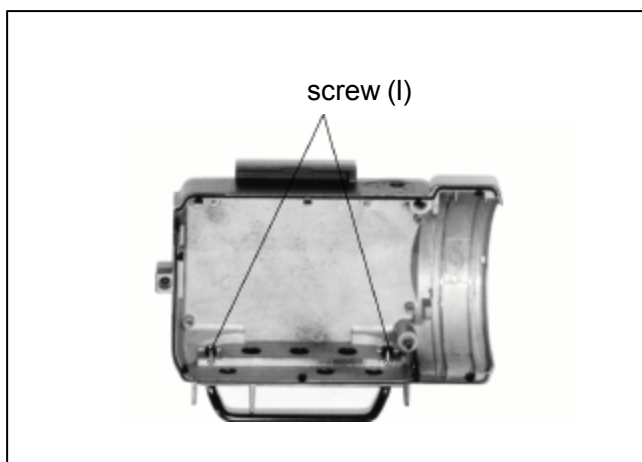


Casually disconnect the following connectors.

Note: When assembling the case, make sure that the gaskets are not degraded.

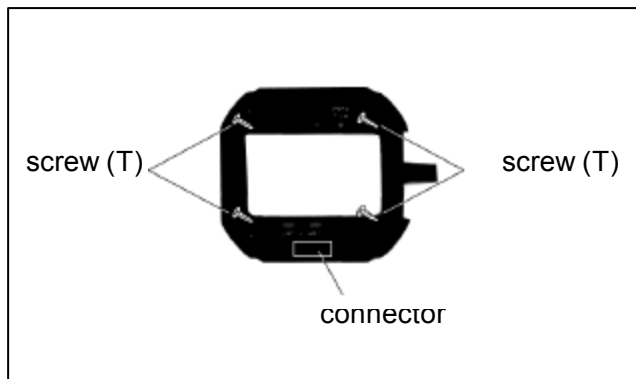
## 11. Guard Bar Removal

1. Unscrew 2 screws so that the guard bar can be removed.

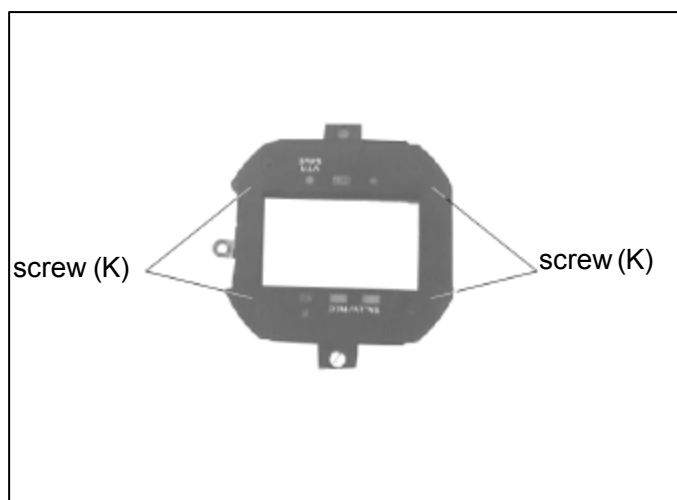


## 12. LED P.C.Board Removal

1. Carefully disconnect connectors (A) and unscrew 4 screws (J) so that the CRT unit can be removed.

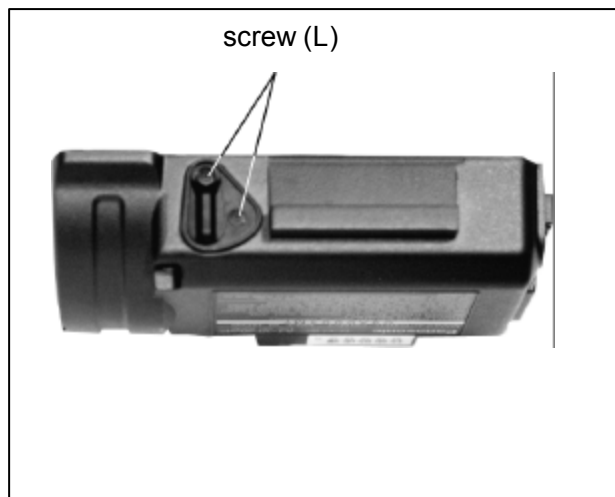


1. Unscrew 4 screws (K) so that the LED P.C.Board can be removed.



## 13. Back Tally Base Removal

Unscrew 2 screws (L) so that the Back Tally Base can be removed.



# SECTION 3

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## ELECTRICALADJUSTMENT PROCEDURES

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### **SEC 3 electrical adjustment procedures**

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# 1. Preparation

## 1-1 Measuring Equipment and Special Tools.

No	Item	Recommend Stuff	Note
1	Digital Volt Meter		
2	Frequency Counter		
3	Registration Chart	VFK0673	
4	High voltage prove		Use For High Voltage measurement
5	Screwdriver(for adjustment).Hex Wrench		The screwdriver use the made by resin

The camera recorder becomes necessary separately for the all-kind control such as the aspect changing to the others.

## 1-2 Adjustment preparation

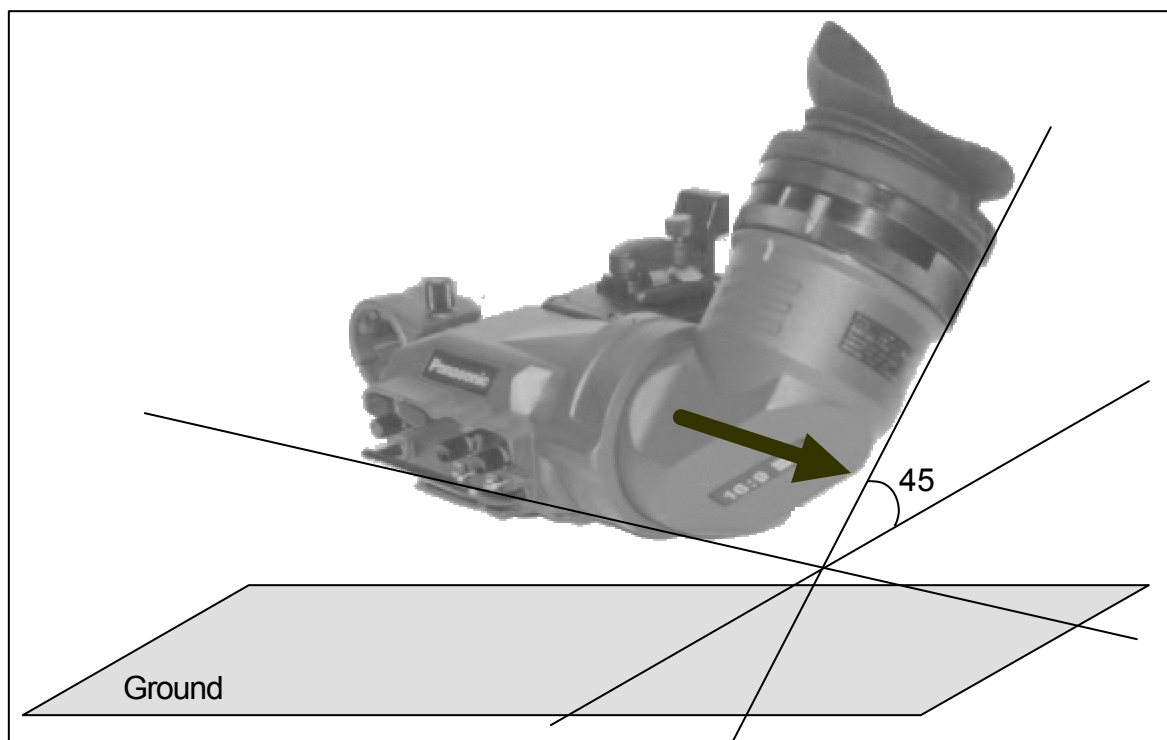
Execute an adjustment under the following environment to attempt various adjustment precision improvement.

(1)Horizontally set the viewfinder unit and Aim the CRT face side as follows.

A) Northern Hemisphere ----- North Direction

B) Southern Hemisphere ----- South Direction

(2) Adjust the angle of the eye piece by 45 as shown below.



## 2. Electrical Adjustment Procedure (AJ-VF15)

### 2-1. Power voltage Adjustment

BOARD	MAIN BOARD
SPEC	9.5V +/- 0.1V
TEST	TP2 (CN3 Connector 1pin)
ADJUST	RV1 [V0-ADJ]
M.EQ	Digital Volt Meter

1. Adjust **RV1** so that the Voltage at **TP2** is 9.5V+/-0.1V.

### 2-2. V Free Run Adjustment

BOARD	MAIN BOARD / SUB1 BOARD
SPEC	48Hz+/- 0.5Hz (NTSC) 38Hz+/- 0.5Hz (PAL)
TEST	TP12 (CN2 Connector 4pin) /MAIN BOARD
ADJUST	RV2 [V-HOLD] / SUB1 BOARD
M.EQ	Frequency Counter

1. Adjust **RV2** so that the frequency at **TP12** is 48Hz+/- 0.5Hz (NTSC) / 38Hz+/- 0.5Hz (PAL)

### 2-3. H Free Run Adjustment

BOARD	MAIN BOARD / SUB1 BOARD
SPEC	15.73+/-0.05kHz (NTSC) 15.63+/-0.05kHz (PAL)
TEST	TP9 (CN2 Connector 1pin) /MAIN BOARD
ADJUST	RV1 [H-HOLD] /SUB1 BOARD
M.EQ	Frequency Counter

1. Adjust **RV1** so that the frequency at **TP9** is 48Hz+/- 0.5Hz (NTSC) / 38Hz+/-0.5Hz (PAL).

### 2-4. Focus Adjustment

BOARD	MAIN BOARD
SPEC	5.8kV +/- 0.1kV
TEST	High Voltage Connector (FBT Side)
ADJUST	RV5 [FOCUS]
M.EQ	Digital Volt meter [Use High voltage prove]

1. Set the **CONTRAST VR**, **BRIGHT VR** to the center and

**PEAKING VR** to the minimum position.

2. Connect the high voltage voltmeter with the high voltage prove to the connector between the FBT and anode cap.
3. Adjust **RV5** so that the High Voltage is within specification.

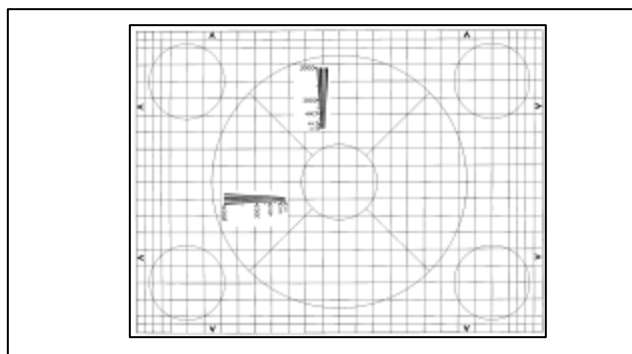


Fig.1 Registration Chart

### 2-5. Screen size Adjustment

BOARD	MAIN BOARD / SUB1 BOARD
TEST	EVF Picture
ADJUST	RV3 [H-SIZE (WIDE)] / MAIN BOARD RV3 [V-SIZE] / SUB1 BOARD RV5 [V-SIZE (WIDE)] / SUB1 BOARD

#### Adjustment for 4 : 3 mode

1. Open the on-screen menu on the camera recorder in the 3:4 mode so that the EVF screen is 4:3.
2. Adjust **RV3** (On SUB1 BOARD) so that the V-BLK as is within 1.5point scale shown in figure 2.
3. Adjust the **RV3** (On MAIN BOARD) so that the circle of chart is most round.

Note : This adjustment should be performed after completion the Size Adjustment in the 4:3 mode.

#### Adjustment for 16:9 mode

1. Open the on-screen menu on the camera recorder in the 16:9 mode so that the EVF screen is 16:9.
2. Adjust **RV5** (On SUB1 BOARD) so that the circle of chart is most round.

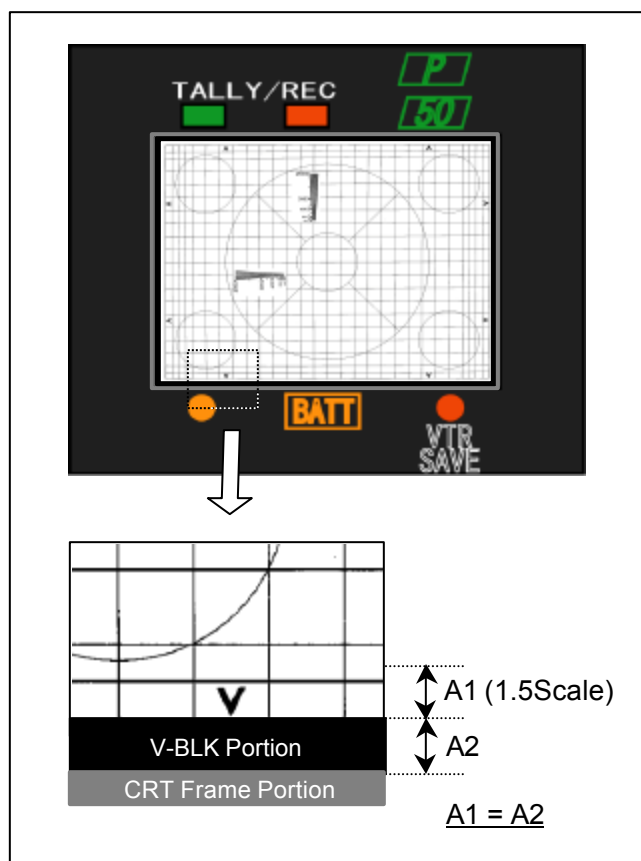


Fig.2 Screen size Adjustment

## 2-6. Brightness Adjustment

BOARD	SUB2 BOARD
SPEC	Pedestal Portion is Just Dark
TEST	EVF Picture
ADJUST	RV4 [SUB BRIGHT]
SIGNAL	Color Bar from Camera Recorder

### Adjustment for 4:3 mode

1. Open the on-screen menu on the camera recorder in the 3:4 mode so that the EVF screen is 4:3.
2. Set the camera recorder in the color bar output mode.
3. Set the **BRIGHT VR**, **CONTRAST VR** to the center position and **PEAKING VR** to the minimum position.
4. Adjust **RV4** at the point where the brightness of the pedestal portion changes from bright to just dark. (Figure.3)

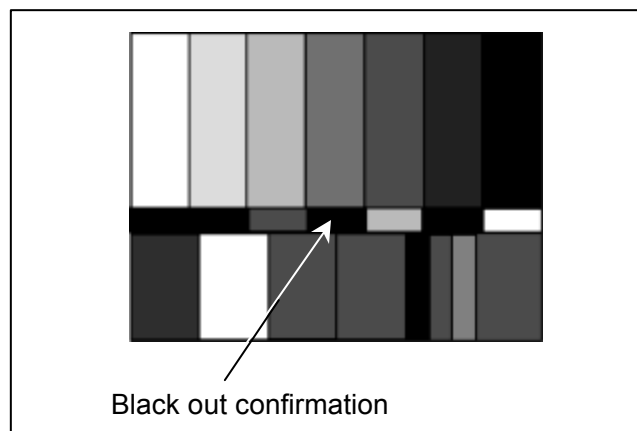


Fig.3 Brightness Adjustment

## 2-7. High voltage regulator Adjustment

BOARD	MAIN BOARD
SPEC	6.0V+/-0.1V
TEST	TP11 (IC9 7pin)
ADJUST	RV6 [OPAMP-ADJ]
M.EQ	Digital Volt meter

1. Set the **BRIGHT VR**, **CONTRAST VR** and **PEAKING VR** to the minimum position.
2. Adjust **RV6** so that the voltage is 6.0V+/-0.1V.

## 2-8. Heater voltage Adjustment

BOARD	MAIN BOARD
SPEC	635mV+/-15mV (DC)
TEST	TP5 – TP6 (CN5 connector 3pin-4pin)
ADJUST	RV7 [VH-ADJ]
M.EQ	Digital Volt meter

1. Adjust **RV7** so that the heater voltage is 635mV+/-15mV (DC).

## 2-9. Peaking Balance Adjustment

BOARD	MAIN BOARD / SUB2 BOARD
SPEC	3.9v+/-0.1v Peaking A = Peaking B
TEST	Pin 16 of CN1 and EVF Picture
ADJUST	RV2 [PEAK-OFFSET]
M.EQ	Digital Volt Meter

1. Set the **BRIGHT VR** to the minimum position, **CONTRAST VR** to the center position and **PEAKING VR** to the maximum position.
2. Open the on-screen menu on the camera recorder in the 3:4 mode so that the EVF screen is 4:3.
3. Aim the camera recorder to the registration chart, and adjust the zoom and focus so that the full-size and best focus registration chart is displayed on the screen of the EVF.
4. Adjust **RV2** so that the both peaking width "A" and "B" are equal.(Figure.4)

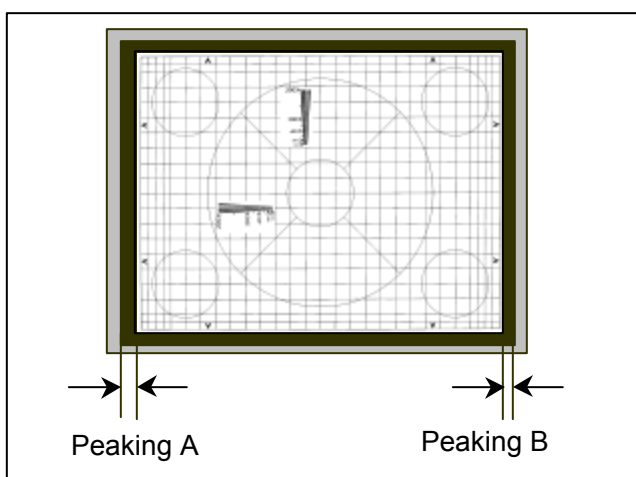


Fig.4 Peaking Balance adjustment

## 3. Electrical Adjustment Procedures (AJ-VF20W)

### 3-1. Power voltage Adjustment

BOARD	MAIN BOARD
SPEC	9.5v+/-0.1v
TEST	TP2 (Pin 1 of CN3)
ADJUST	RV1 [V0-ADJ]
M.EQ	Digital Volt Meter

1. Adjust **RV1** so that the voltage is within the specification.

### 3-2. V. Hold Adjustment

BOARD	MAIN BOARD / SUB1 BOARD
SPEC	48+/-0.5Hz (NTSC) 38+/-0.5Hz (PAL)
TEST	TP12 (Pin 4 of CN2)/ MAIN BOARD
ADJUST	RV2 [V-HOLD] / SUB1 BOARD
M.EQ	Frequency Counter

1. Adjust **RV2** so that the frequency is within the specification.

### 3-3. H. Hold Adjustment

BOARD	MAIN BOARD / SUB1 BOARD
SPEC	15.73+/-0.05kHz (NTSC) 15.63+/-0.05kHz (PAL)
TEST	TP9 (Pin 1 of CN2)/MAIN BOARD
ADJUST	RV1 [H-HOLD]/SUB1 BOARD
M.EQ	Frequency Counter

1. Adjust **RV1** so that the frequency is within the specification.

### 3-4. Focus Adjustment

BOARD	MAIN BOARD
SPEC	6.0kv+/-0.1kv
TEST	Connector between FBT/ Anode Cap
ADJUST	RV5 [FOCUS]
M.EQ	High Voltage Meter with High Voltage Probe

1. Aim the camera recorder to the registration chart and adjust the zoom and focus so that the full-size and best focus registration picture is displayed on the screen of EVF.
2. Connect a high volt meter with high voltage prove to the connector the anode cap and FBT.
3. Adjust **RV5** so that the high voltage is within the specification.

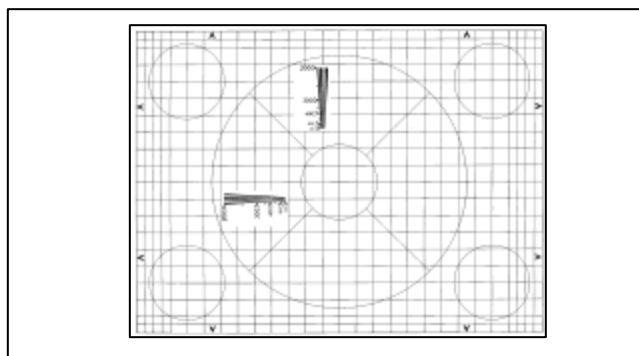


Fig.5 Registration Chart

### 3-5. Screen Size Adjustment1 (4:3Mode)

BOARD	MAIN BOARD / SUB1 BOARD
TEST	EVF Screen
ADJUST	RV4 [H-SIZE(HLC)] / MAIN BOARD RV3 [V-SIZE] / SUB1 BOARD

1. Open the on-screen menu on the camera recorder in the 16:9 mode so that the EVF screen is 16:9.
2. Aim the camera recorder to the registration chart and adjust the zoom and focus so that the full-size and best focus registration picture is displayed on the screen of EVF.
3. Adjust **RV3** (On SUB1 BOARD) so that the width of V portion "A1" is 1.5 scale as shown in figure 6.
4. Adjust **RV4** (On Main BOARD) so that the circles at the 4 corners are most round.

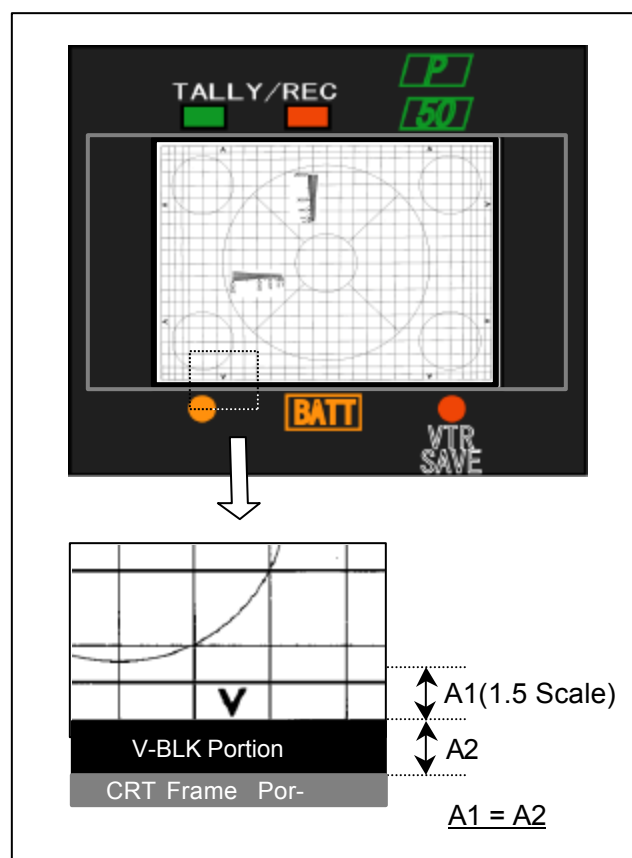


Fig.6 Screen Size Adjustment

### 3-5. Screen Size Adjustment 2 (16:9 Mode)

BOARD	MAIN BOARD
TEST	EVF Screen
ADJUST	RV3 [H-SIZE (WIDE)] RV8 [H-LIN]
M.EQ	Digital Volt Meter

1. Open the on-screen menu on the camera recorder in the 3:4 mode so that the EVF screen is 16:9.
2. Adjust **RV3** and **RV8** so that the width of H blanking at the both side is 1.5 scale as shown figure 6.
3. Adjust the centering magnet so that the picture is positioned in the escutcheon shown in figure 6.

### 3-6. Brightness Adjustment 1 (4:3 Mode)

BOARD	SUB2 BOARD
SPEC	Pedestal Portion is Just Dark
TEST	EVF Screen
ADJUST	RV4 [SUB BRIGHT]
SIGNAL	Color Bar Signal from Camera Recorder

1. Open the on-screen menu on the camera recorder in the 3:4 mode so that the EVF screen is 4:3.
2. Turn "On" the color bare mode in the camera recorder as shown in figure 7.
3. Set the **BRIGHT VR** and **CONTRAST VR** at the center position, and **PEAKING VR** at the minimum position.
4. Adjust **RV4** at the position just the illumination of the pedestal changes from just slightly light to dark.

### 3-6. Brightness Adjustment 2

### (16:9 Mode)

BOARD	SUB2 BOARD
SPEC	Pedestal Portion is Just Dark
TEST	EVF Screen
ADJUST	RV6 [SUB BRIGHT (WIDE)]
SIGNAL	Color Bar Signal from Camera Recorder

1. Open the on-screen menu on the camera recorder in the 16: 9 mode so that the EVF screen is 16: 9 too.
2. Turn "On" the color bare mode in the camera recorder.
3. Set the **BRIGHT VR** and **CONTRAST VR** at the center and **PEAKING VR** at the minimum position.
4. Adjust **RV4** at the position just the illumination of the pedestal changes from just slightly light to dark.

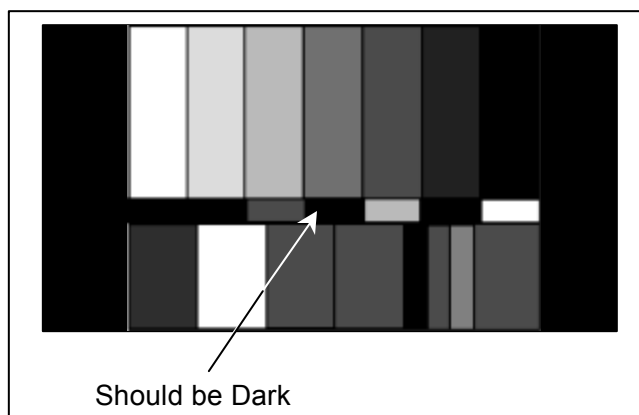


Fig.7 Brightness Adjustment

### 3-7. High Voltage Regulator Adjustment

BOARD	MAIN BOARD
SPEC	6.0v+/-0.1v
TEST	TP11 (Pin 7 of IC9)
ADJUST	RV6 [OPAMP-ADJ]
M.EQ	Digital Voltmeter

1. Set the **BRIGHT VR**, **CONTRAST VR** and **PEAKING VR** at the minimum position.
2. Open the on-screen menu on the camera recorder in the 16:9 mode so that the EVF screen is 16:9 too.
3. Connect the digital voltmeter to **TP11**.
4. Adjust **RV6** so that the voltage is 6.0V +/- 0.1V.

### 3-8. Heater Voltage Adjustment

BOARD	MAIN BOARD
SPEC	635mV+/-15mV (DC)
TEST	TP5 (Hot) & TP6 GND (Pins 3 & 4 CN5)
ADJUST	RV7 [VH-ADJ]
M.EQ	Digital Voltmeter

1. Connect the voltmeter to **TP5** (Hot) and **TP6** (GND).
2. Adjust **RV7** so that the voltage is 635mV+/-15mV.

### 3-9. Peaking Balance Adjustment

BOARD	MAIN BOARD / SUB2 BOARD
SPEC	3.9V+/-0.1V Peaking A = Peaking B
TEST	Pin 16 of CN1 / EVF Screen
ADJUST	RV2 [PEAK-OFFSET]
M.EQ	Digital Voltmeter

1. Set the **BRIGHT VR** and **CONTRAST VR** at the center, **PEAKING VR** at maximum position.
2. Aim the camera recorder to the registration chart and adjust the zoom and focus so that the full size of the chart is displayed on the EVF screen.
3. Open the on-screen menu on the camera recorder in the 16:9 mode so that the EVF screen is 16: 9.
4. Adjust **RV2** so that the both peaking width "A" and "B" are equal. (Figure.8)

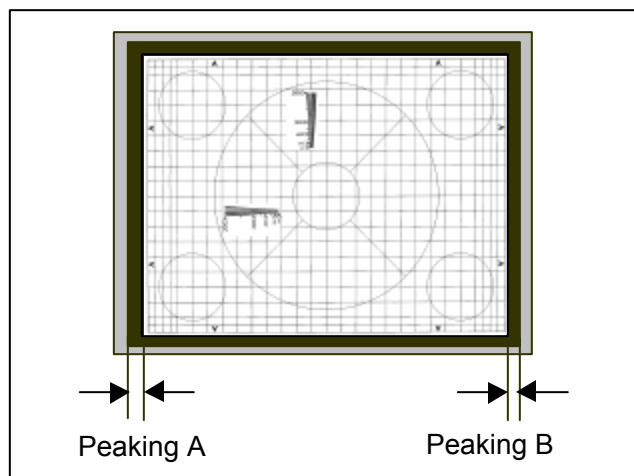


Fig.8 Peaking Balance adjustment

# SECTION 4

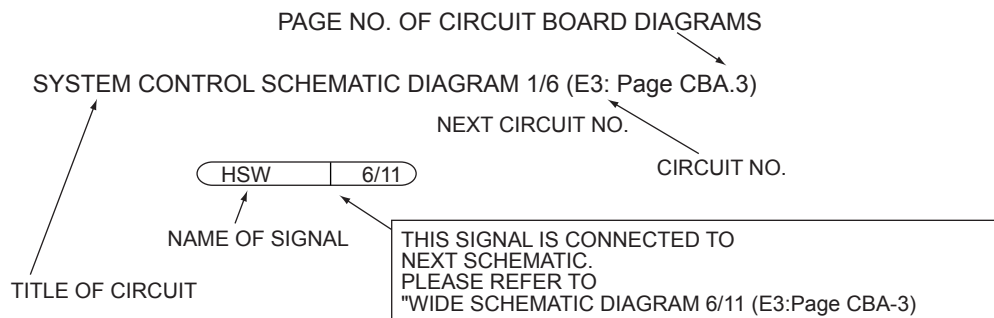
## BLOCK DIAGRAMS SCHEMATIC DIAGRAMS CIRCUIT BOARD DIAGRAMS

### Note:

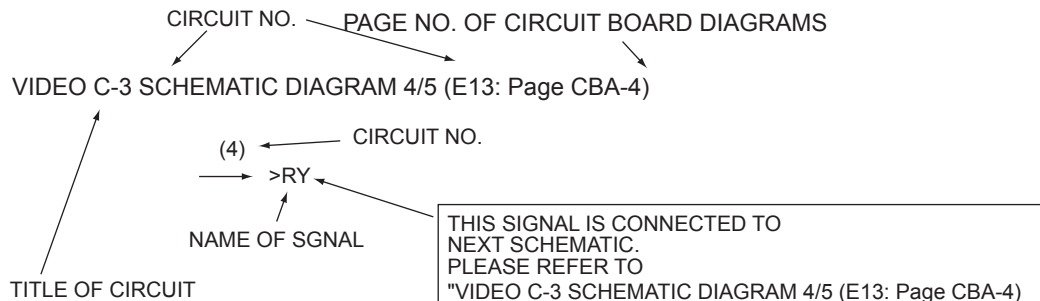
1. Do not use the part number shown on the schematic diagram or P.C.Board layout for ordering.  
The correct part number for ordering is shown in the Exploded Views / Parts List section.
2. Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS ( $\mu$ F), P=uuF.

### NOTE

(EX 1)



(EX 2)



\* Mark → Parts value, see table in the schematic diagram.

(EX:)

	AJ-D700	AJ-D800	
R2018	10K	10K	10K ohm
R2019	20K	*PAT	No part


# CONTENTS

EVF BLOCK DIAGRAMS .....	BLK1
MAIN SCHEMATICK DIAGRAMS .....	SCM1
MAIN SUB1 SCHEMATICK DIAGRAMS .....	SCM2
MAIN SUB2 SCHEMATICK DIAGRAMS .....	SCM3
MAIN P.C.BOARD .....	PTN1
MAIN SUB1 P.C.BOARD .....	PTN1
MAIN SUB2 P.C.BOARD .....	PTN2
LED P.C.BOARD .....	PTN2

## CAUTION

THE [ ] MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

### IMPORTANT SAFETY NOTICE:

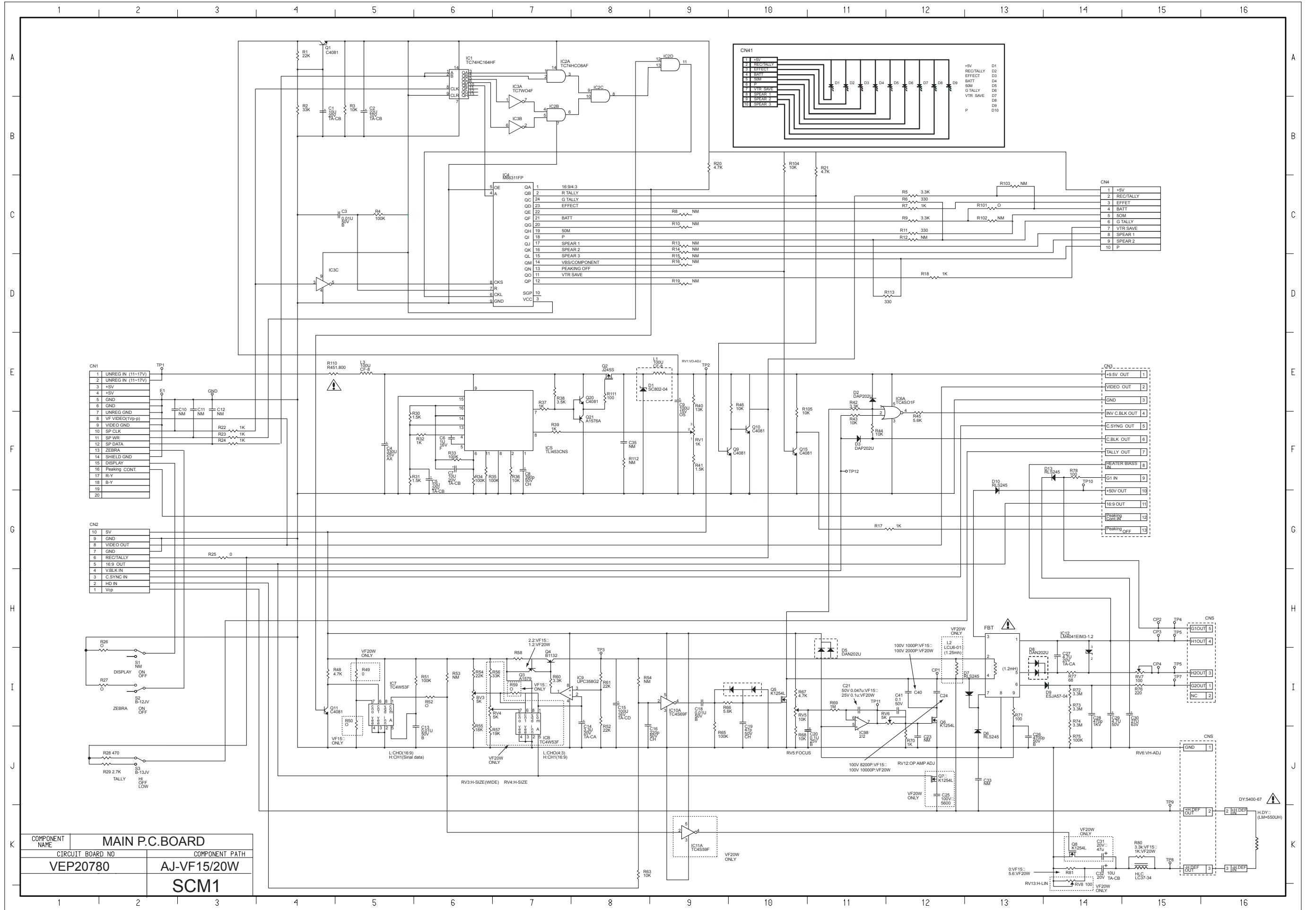
Components identified with the mark  have the special characteristics for safety.

When replacing any of these components, use only the same type.

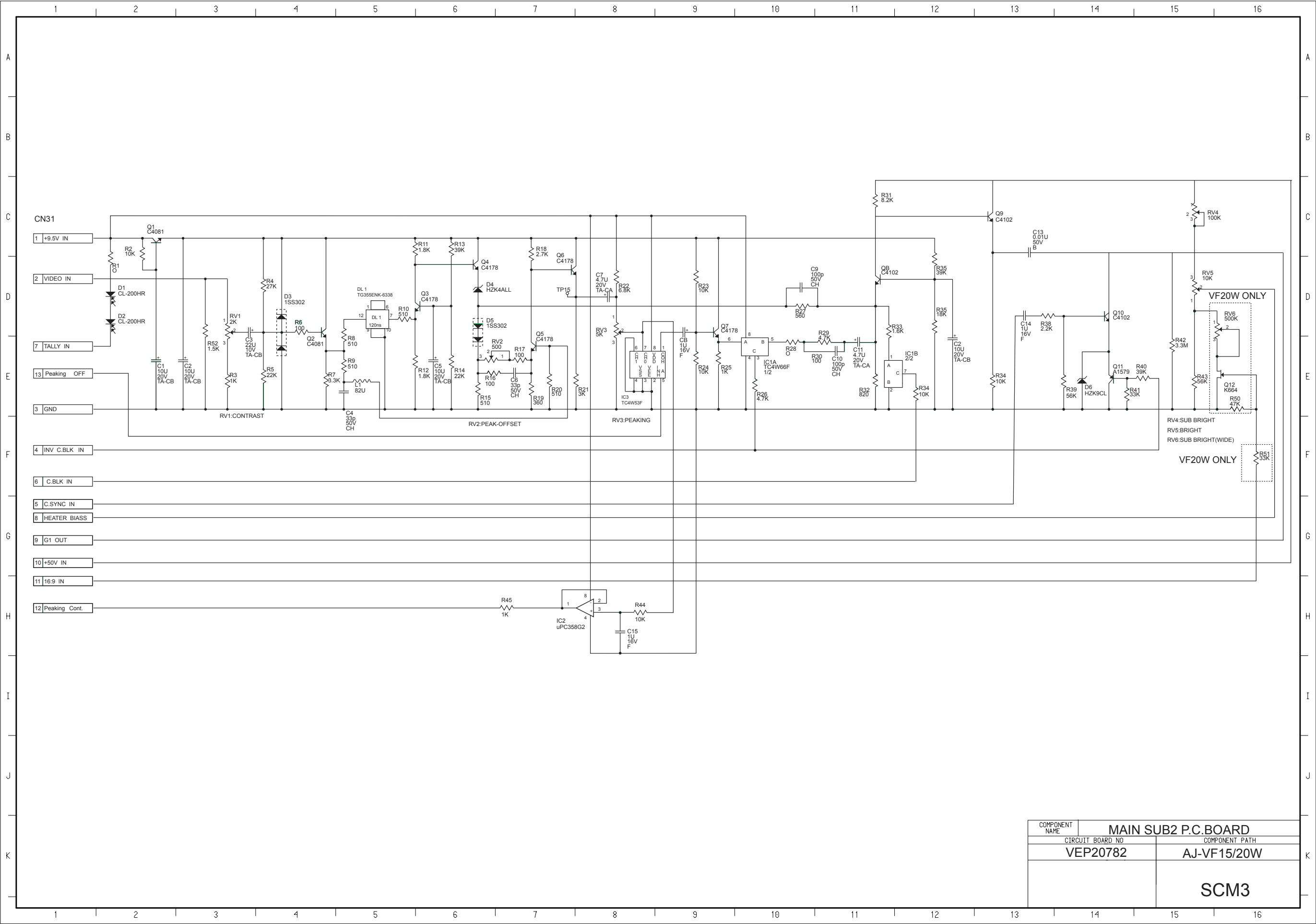


-BLK1-









COMPONENT NAME	MAIN SUB2 P.C.BOARD	
CIRCUIT BOARD NO	VEP20782	
COMPONENT PATH	AJ-VF15/20W	
	SCM3	

# SECTION 5

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## EXPLODED VIEWS

&

## REPLACEMENT PARTS LIST

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**Note:**

1. \*Be sure to make your orders of replacement parts according to this list.
2. Unless otherwise specified, all resistors are in OHMS, K=1,000  
OHMS, all capacitors are in MICROFARADS ( $\mu$ F), P= pF.
3. The P.C. Board units marked with "n" shown below the main assembled parts.
4. The parts marked with (E) on the exploded view show the electric parts.
5. **IMPORTANT SAFETY NOTICE**  
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components, use only the same type.
6. The marking (RTL) indicates the retention time is limited for this item.  
After the discontinuation of this assembly in production, it will no longer be available

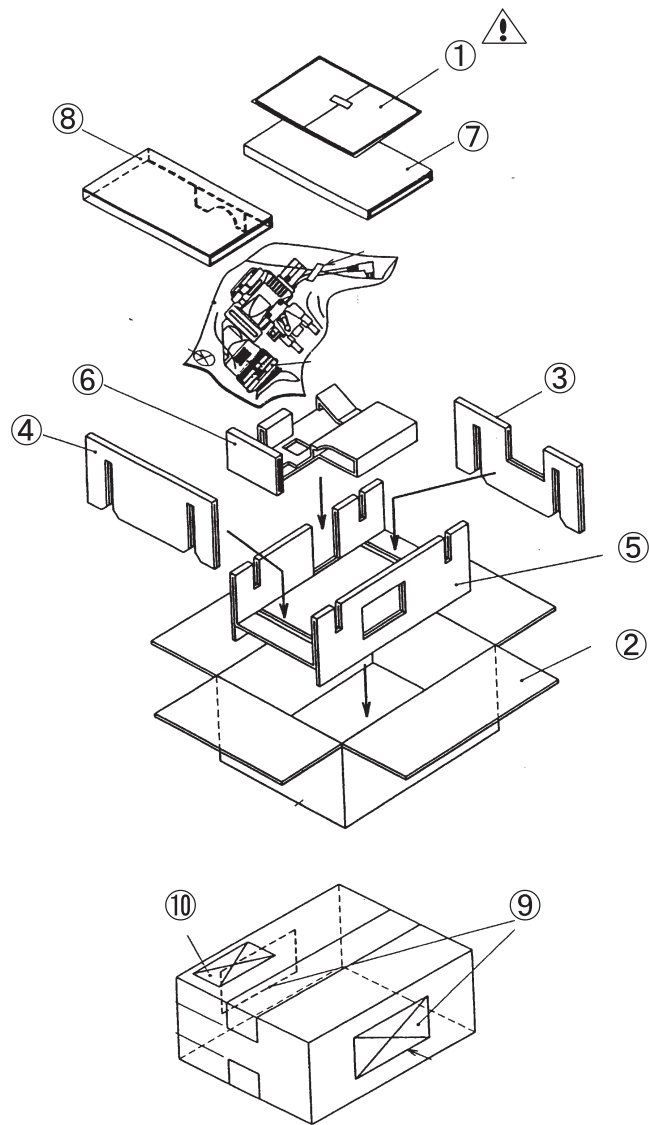
<<Abbreviations for part>>

<NAME>	<DESCRIPTIONS>
C. CAPACITOR	: CERAMIC CAPACITOR
C. CAPACITOR CH	: CERAMIC CHIP CAPACITOR
E. CAPACITOR	: ELECTROLYTIC CAPACITOR
G. CAPACITOR	: GLASS CAPACITOR
M. CAPACITOR	: MICA CAPACITOR
P. CAPACITOR	: PLASTIC FILM CAPACITOR
S. CAPACITOR	: SEMI-CONDUCTOR CAPACITOR
T. CAPACITOR	: TANTALUM CAPACITOR
TRIMMER	: TRIMMER
C. RESISTOR	: CARBON RESISTOR
F. RESISTOR	: FUSE RESISTOR
M. RESISTOR	: METAL OXIDE RESISTOR
M. RESISTOR CH	: METAL OXIDE CHIP RESISTOR
S. RESISTOR	: SOLID RESISTOR
V. RESISTOR	: VARIABLE RESISTOR
W. RESISTOR	: WIRE WOUND RESISTOR
COMBI. TR-R	: TRANSISTOR-RESISTOR COMBINATION PARTS
COMBI. R-R	: RESISTOR-RESISTOR COMBINATION PARTS
COMBI. C-R	: CAPACITOR-RESISTOR COMBINATION PARTS
COMBI. C-R-R	: CAPACITOR-RESISTOR-COIL COMBINATION PARTS
P.C. BOARD	: PRINTED CIRCUIT BOARD
W/COMPONENT	: WITHCOMPONENT

# CONTENTS

Packing Parts Assembly .....	PRT1
Mechanical Parts Assembly .....	PRT2
Electrical Replacement Parts List .....	PRT4

PACKING PARTS ASSEMBLY



PACKING PARTS ASSEMBLY

AJ-YAD230P

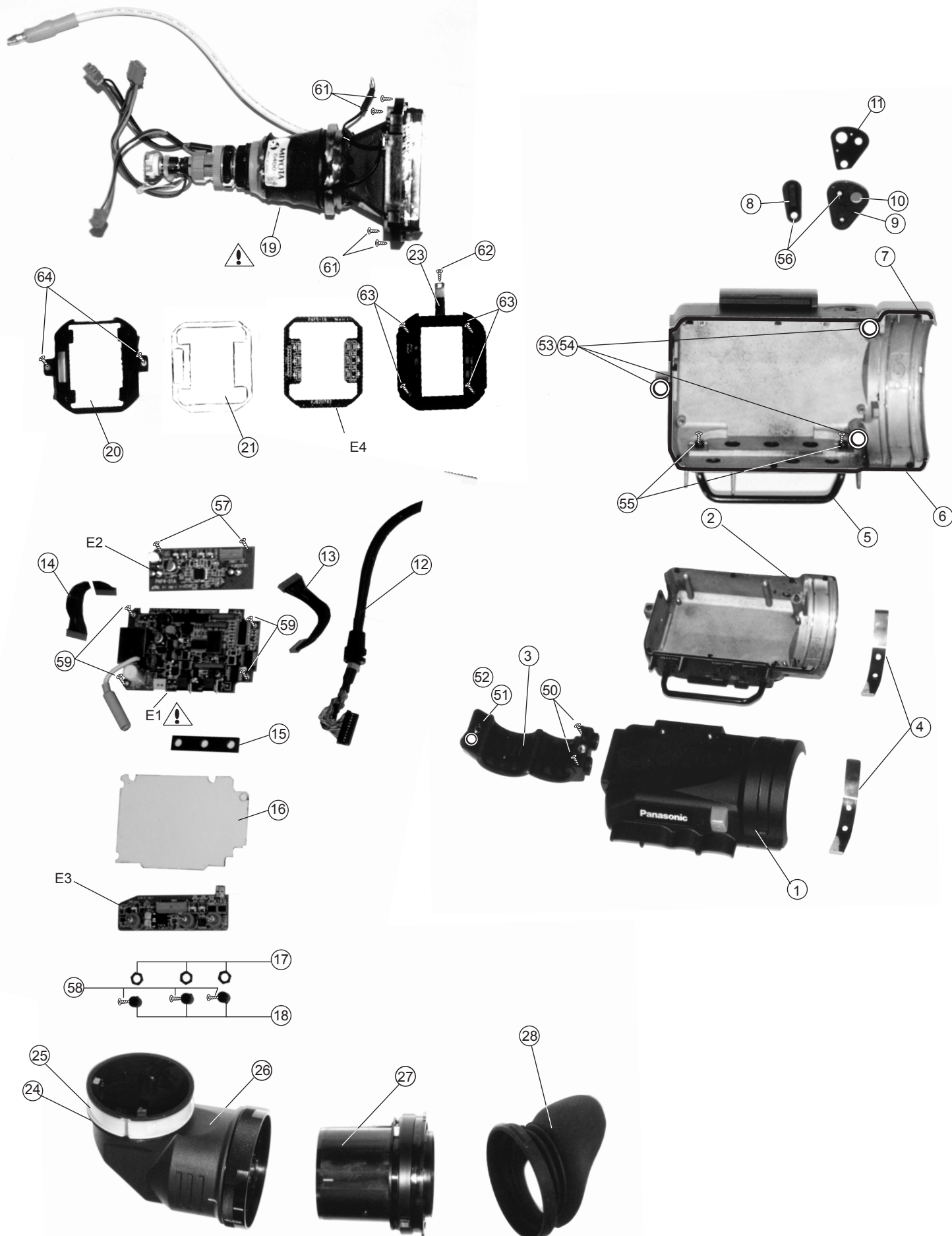
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VQT8082	OPERATING INSTRUCTION	1						
2	VPG0A71	PACKING CASE	1						
3	VPN5247	CUSHION A	1						
4	VPN5248	CUSHION B	1						
5	VPN5249	CUSHION C	1						
6	VPN5250	CUSHION D	1						
7	VPN5251	CUSHION E	1						
8	VPN5252	CUSHION F	1						
9	VQL9822	PACKING LABEL	1						
10	VQL8185	CAUTION LABEL	1						

AJ-VF15P\_E/VF20WP\_E

[illegible]



# MECHANICAL PARTS ASSEMBLY



## AJ-VF15P/E

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
• i E1	VEP20780B	MAIN P.C.BOARD	1	(RTL)AJ-VF15P	IC5	TL1453CNS	IC	1	
• i E1	VEP20780D	MAIN P.C.BOARD	1	(RTL)AJ-VF15E	IC6	TC4S01F	IC	1	
					IC7	TC4W53F	IC	1	
• i E2	VEP20781B	SUB 1 P.C.BOARD	1	(RTL)AJ-VF15P	IC9	UPC358G2-E2	IC	1	
• i E2	VEP20781D	SUB 1 P.C.BOARD	1	(RTL)AJ-VF15E	IC10	TC4S69F	IC	1	
					IC12	LM4041E1M3	IC	1	
• i E3	VEP20782B	SUB 2 P.C.BOARD	1	(RTL)	L1	VLQ0891	COIL	1	
					L3	VLQ0891	COIL	1	
• i E4	VEP20783A	LED P.C.BOARD	1	(RTL)					
					Q1	2SC4081	TRANSISTOR	1	
					Q2	2SJ245S	TRANSISTOR	1	
					Q3	2SA1579	TRANSISTOR	1	
					Q4	2SB1132T100	TRANSISTOR	1	
					Q5,Q6	2SK1254L	TRANSISTOR	2	
					Q9-11	2SC4081	TRANSISTOR	3	
					Q15	2SC4081	TRANSISTOR	1	
					Q20	2SC4081	TRANSISTOR	1	
• i E1	VEP20780B	MAIN P.C.BOARD	1	(RTL)AJ-VF15P	Q21	2SA1576A	TRANSISTOR	1	
	VEP20780D	MAIN P.C.BOARD	1	(RTL)AJ-VF15E					
C1	VCS1DQ106	E.CAPACITOR 20V 10M	1		R1	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	
C2	VCS1AQ226	E.CAPACITOR 10V 22M	1		R2	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1	
C3	ECUM1H103K	C.CAPACITOR CH 50V 0.01U	1		R3	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
C4	VCEV1EBL33	E.CAPACITOR CH 25V 330U	1		R4	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
C5	VCS1DQ106	E.CAPACITOR 20V 10M	1		R5	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
C6	ECUM1C105Z	C.CAPACITOR CH 16V 1U	1		R6	ERJ6GEYG33	M.RESISTOR CH 1/10W 33K	1	
C7	VCS1DQ106	E.CAPACITOR 20V 10M	1		R7	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
C8	ECUM1H391J	C.CAPACITOR CH 50V 390F	1		R9	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
C9	VCEA1CBG10	E.CAPACITOR CH 16V 100F	1		R11	ERJ6GEYG33	M.RESISTOR CH 1/10W 33K	1	
C13	ECUM1H103K	C.CAPACITOR CH 50V 0.01U	1		R17,18	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	2	
C14	VCS1DQ335	E.CAPACITOR 20V 3.3M	1		R20,21	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	2	
C15	VCS1CQ107	E.CAPACITOR 16V 100M	1		R22-24	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	3	
C16	ECUM1H221J	C.CAPACITOR CH 50V 220F	1		R25-27	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	3	
C18	ECUM1H103K	C.CAPACITOR CH 50V 0.01U	1		R28	ERJ6GEYJ47	M.RESISTOR CH 1/10W 47K	1	
C19	ECUM1H470J	C.CAPACITOR CH 50V 47F	1		R29	ERJ6GEYG27	M.RESISTOR CH 1/10W 2.7K	1	
C20	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	1		R30,31	ERJ6GEYG15	M.RESISTOR CH 1/10W 1.5K	2	
C21	ECUM1H473K	C.CAPACITOR CH 50V 0.047U	1		R32	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
C24	VCF01AP822	P.CAPACITOR 10V 8200P	1		R33-35	ERJ6GEYG10	M.RESISTOR CH 1/10W 100K	3	
C26	ECUM1H472K	C.CAPACITOR CH 50V 4700F	1		R36	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
C27	VCS1DQ475	E.CAPACITOR 20V 4.7M	1		R37	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
C28	VCK0302	C.CAPACITOR	1		R38	ERJ6GEYG36	M.RESISTOR CH 1/10W 3.6K	1	
C29	VCEV1HBH4F	E.CAPACITOR CH 50V 4.7U	1		R39	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
C30	VCEA1JBK27	E.CAPACITOR CH 63V 27U	1		R40	ERJ6GEYG13	M.RESISTOR CH 1/10W 13K	1	
C32	VCS1DQ106	E.CAPACITOR 20V 10M	1		R41	ERJ6GEYG15	M.RESISTOR CH 1/10W 1.5K	1	
					R42	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
CN1	VJP3440A020	CONNECTOR (MALE)	1		R43,44	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	2	
CN2	VJP1603T	CONNECTOR (MALE)	1		R45	ERJ6GEYG56	M.RESISTOR CH 1/10W 5.6K	1	
CN3	VJP1942	CONNECTOR (MALE)	1		R46	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
CN4	VJP1603T	CONNECTOR (MALE)	1		R48	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	1	
CN5	VJP4292	CONNECTOR (MALE)	1		R50	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
CN6	VJP1230T	CONNECTOR (MALE)	1		R51	ERJ6GEYG10	M.RESISTOR CH 1/10W 100K	1	
					R52	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
CP1-P4	VJR1072	PIN	4		R54	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	
					R55	ERJ6GEYG18	M.RESISTOR CH 1/10W 18K	1	
D1	SC80204	DIODE	1		R58	ERJ8GEYJ2R	M.RESISTOR CH 1/8W 2.2K	1	
D2,D3	DAP202U	DIODE	2		R59	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
D4	1SS302	DIODE	1		R60	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
D5	DAN202U-T10	DIODE	1		R61,62	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	2	
D6,D7	RLS245	DIODE	2		R63	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
D8	DAN202U-T10	DIODE	1		R65	ERJ6GEYG10	M.RESISTOR CH 1/10W 100K	1	
D9	ESJA57-04A	DIODE	1		R66	ERJ6GEYG56	M.RESISTOR CH 1/10W 5.6K	1	
D10	RLS245	DIODE	1		R67	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	1	
D13	RLS245	DIODE	1		R68	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
					R69	ERJ6GEYG10	M.RESISTOR CH 1/10W 1M	1	
E1	VJR1072	PIN	1		R70	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
					R71	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
FBT	VLT0950	FLYBACK TRANSFORMER	1		R72-74	ERJ6GEYJ33	M.RESISTOR CH 1/10W 3.3K	3	
					R75	ERJ6GEYG10	M.RESISTOR CH 1/10W 100K	1	
HLC	VLQ0889	HORIZON LINEAR COIL	1		R76	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	
					R77	ERJ6GEYG68	M.RESISTOR CH 1/10W 68K	1	
IC	TC74HC164AF	IC	1		R78	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
IC2	TC74HC08AF	IC	1		R80	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
IC3	TC7W04F	IC	1		R81	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
IC4	M66311FP	IC	1		R101	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
					R104,05	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	2	

## AJ-VF15P/E

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R110	VRE0218	M.RESISTOR	1	
R111	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
RV1	VRV0303B102	V.RESISTOR 1K	1	
RV3	VRV0303B502	V.RESISTOR 5K	1	
RV5	VRV0303B103	V.RESISTOR 10K	1	
RV6	VRV0303B502	V.RESISTOR 5K	1	
RV7	VRV0303B101	V.RESISTOR 100	1	
S2	VST0332	TOGGLE SWITCH	1	
S3	VST0333	TOGGLE SWITCH	1	
		MISCELLANEOUS		
	VSC4926	SHIELD CASE	1	
E2	VEP20781B	SUB 1 P.C.BOARD	1	(RTL)AJ-VF15P
	VEP20781D	SUB 1 P.C.BOARD	1	(RTL)AJ-VF15E
C1	VCS1VQ105	E.CAPACITOR 35V 1M	1	
C2-C4	VCS1DQ106	E.CAPACITOR 20V 10M	3	
C5,C6	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	2	
C7,C8	VCS1DQ106	E.CAPACITOR 20V 10M	2	
C9	VCS1VQ105	E.CAPACITOR 35V 1M	1	
C10	ECUX1H682K	C.CAPACITOR CH 50V 6800	1	
C12	ECHU1C472J	P.CAPACITOR 16V 4700P	1	
C13	ECUM1E223K	C.CAPACITOR CH 25V 0.023	1	
C14,15	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	2	
C16,17	VCS1VQ105	E.CAPACITOR 35V 1M	2	
C19	ECUM1H472K	C.CAPACITOR CH 50V 4700	1	
C20	VCEV1CBJ10	E.CAPACITOR 16V 100U	1	
C21	ECUM1H221J	C.CAPACITOR CH 50V 220	1	
C22	ECUM1H153K	C.CAPACITOR CH 50V 0.015	1	
C23	VCS1DQ335	E.CAPACITOR 20V 3.3M	1	
C24	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	1	
C25	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C26	ECUM1H562K	C.CAPACITOR CH 50V 5600	1	
C27	VCEV1CBL47	E.CAPACITOR 16V 470U	1	
C28	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	1	
CN21	VJP1614	CONNECTOR (MALE)	1	
CN22	VJP1843	CONNECTOR (MALE)	1	
CP3	VJR1072	TEST POINT	1	
D1	CL-200HRC	LED	1	
D2	DAN202U-T10	DIODE	1	
D3	1SS302	DIODE	1	
IC1	HA11423MP	IC	1	
Q1,Q2	2SC4081	TRANSISTOR	2	
Q3	1M21	TRANSISTOR-RESISTOR	1	
Q4	2SK664	TRANSISTOR	1	
R1	ERJ6GEYG22	M.RESISTOR CH 1/10W 2.2K	1	
R2	ERJ6GEYG47	M.RESISTOR CH 1/10W 470	1	
R3	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R4	ERJ6GEYF12	M.RESISTOR CH 1/10W 12K	1	
R5	ERJ6GEYG27	M.RESISTOR CH 1/10W 27K	1	
R6	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R7	ERJ6GEYF82	M.RESISTOR CH 1/10W 8.2K	1	
R8	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R9	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	
R10	ERJ6GEYG12	M.RESISTOR CH 1/10W 12K	1	
R11	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R12	ERJ6GEYG68	M.RESISTOR CH 1/10W 68K	1	
R13	ERJ6GEYF12	M.RESISTOR CH 1/10W 12K	1	
R14	ERJ6GEYF82	M.RESISTOR CH 1/10W 8.2K	1	
R15	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1	
R16	ERJ6GEYG22	M.RESISTOR CH 1/10W 2.2K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R17	ERJ6GEYF47	M.RESISTOR CH 1/10W 47K	1	
R18	ERJ6GEYJ224	M.RESISTOR CH 1/10W 220	1	
R19	ERJ6GEYG56	M.RESISTOR CH 1/10W 5.6K	1	
R20	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R21	ERJ6GEYG68	M.RESISTOR CH 1/10W 6.8K	1	
R22	ERJ6GEYG30	M.RESISTOR CH 1/10W 3K	1	
R23	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R24	ERJ6GEYJ15	M.RESISTOR CH 1/10W 15	1	
R25	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
R26	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	1	
R27	ERJ6GEYJ4R	M.RESISTOR CH 1/10W 4.7K	1	
R28	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1	
R29	ERJ6GEYF47	M.RESISTOR CH 1/10W 47K	1	
R30	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R31	ERJ6GEYF56	M.RESISTOR CH 1/10W 56K	1	
R32	ERJ6GEYJ47	M.RESISTOR CH 1/10W 47K	1	
R33	ERJ6GEYJ10	M.RESISTOR CH 1/10W 10	1	
R34	ERJ6GEYJ47	M.RESISTOR CH 1/10W 47K	1	
R35	ERJ6GEYF47	M.RESISTOR CH 1/10W 47K	1	
R36	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1	
RV1,V2	EVML1GA00B	V.RESISTOR 5K	2	
RV3-V5	EVML1GA00B	V.RESISTOR 500	3	
		MISCELLANEOUS		
	VMP6012	P.C.BOARD STAY	1	
	XSB2+4FC	SCREW	2	
• j E3	VEP20782B	SUB 2 P.C.BOARD	1 (RTL)	
C1,C2	VCS1DQ106	E.CAPACITOR 20V 10M	2	
C3	VCS1AQ226	E.CAPACITOR 10V 22M	1	
C4	ECUM1H330J	C.CAPACITOR CH 50V 33P	1	
C5	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C6	ECUM1H330J	C.CAPACITOR CH 50V 33P	1	
C7	VCS1DQ475	E.CAPACITOR 20V 4.7M	1	
C8	ECUM1C105Z	C.CAPACITOR CH 16V 1U	1	
C9,10	ECUM1H101J	C.CAPACITOR CH 50V 100P	2	
C11	VCS1DQ475	E.CAPACITOR 20V 4.7M	1	
C12	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C13	ECUM1H103K	C.CAPACITOR CH 50V 0.01U	1	
C14,15	ECUM1C105Z	C.CAPACITOR CH 16V 1U	2	
CN31	VJP1943	CONNECTOR (MALE)	1	
D1,D2	CL200HR-CT	DIODE	2	
D3	1SS302	DIODE	1	
D4	HZK4ALL	DIODE	1	
D5	1SS302	DIODE	1	
D6	HZK9CL	DIODE	1	
DL1	VLD0413	DELAY	1	
IC1	TC4W66F	IC	1	
IC2	UPC358G2-E2	IC	1	
IC3	TC4W53F	IC	1	
L1	VLQ0892	COIL	1	
Q1,Q2	2SC4081	TRANSISTOR	2	
Q3-Q7	2SC4178T1F1	TRANSISTOR	5	
Q8-10	2SC4102	TRANSISTOR	3	
Q11	2SA1579-T106	TRANSISTOR	1	
R1	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
R2	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R3	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R4	ERJ6GEYG27	M.RESISTOR CH 1/10W 27K	1	
R5	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	

AJ-VF15P/E

[illegible]

# AJ-VF15P/VF20WP

[illegible]

AJ-VF20WP/E

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
• i E1	VEP20780B	MAIN P.C.BOARD	1	(RTL)AJ-VF20WP
	VEP20780C	MAIN P.C.BOARD	1	(RTL)AJ-VF20WE
• i E2	VEP20781A	SUB 1 P.C.BOARD	1	(RTL)AJ-VF20WP
	VEP20781C	SUB 1 P.C.BOARD	1	(RTL)AJ-VF20WE
• i E3	VEP20782A	SUB 2 P.C.BOARD	1	(RTL)
• i E4	VEP20783A	LED P.C.BOARD	1	(RTL)
• i E1	VEP20780B	MAIN P.C.BOARD	1	(RTL)AJ-VF20WP
	VEP20780C	MAIN P.C.BOARD	1	(RTL)AJ-VF20WE
C1	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C2	VCS1AQ226	E.CAPACITOR 10V 22M	1	
C3	ECUM1H103K	C.CAPACITOR CH 50V 0.01	1	
C4	VCEV1EBL33	E.CAPACITOR CH 25V 330	1	
C5	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C6	ECUM1C105Z	C.CAPACITOR CH 16V 1U	1	
C7	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C8	ECUM1H391J	C.CAPACITOR CH 50V 390	1	
C9	VCEA1CBG10	E.CAPACITOR CH 16V 100	1	
C13	ECUM1H103K	C.CAPACITOR CH 50V 0.01	1	
C14	VCS1DQ335	E.CAPACITOR 20V 3.3M	1	
C15	VCS1CQ107	E.CAPACITOR 16V 100M	1	
C16	ECUM1H221J	C.CAPACITOR CH 50V 220	1	
C18	ECUM1H103K	C.CAPACITOR CH 50V 0.01	1	
C19	ECUM1H470J	C.CAPACITOR CH 50V 47P	1	
C20,21	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	2	
C24	VCF01AP103	P.CAPACITOR 10V 0.01U	1	
C25	VCF01AP562	P.CAPACITOR 10V 5600P	1	
C26	ECUM1H472K	C.CAPACITOR CH 50V 4700	1	
C27	VCS1DQ475	E.CAPACITOR 20V 4.7M	1	
C28	VCK0302	C.CAPACITOR	1	
C29	VCEV1HBH4F	E.CAPACITOR CH 50V 4.7U	1	
C30	VCEA1JBK27	E.CAPACITOR CH 63V 27U	1	
C31	VCS1DQ476	E.CAPACITOR 20V 47M	1	
C32	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C41	ECUM1H104Z	E.CAPACITOR 16V 0.1U	1	AJ-VF20WE
CN1	VJP3440A020	CONNECTOR (MALE)	1	
CN2	VJP1603T	CONNECTOR (MALE)	1	
CN3	VJP1942	CONNECTOR (MALE)	1	
CN4	VJP1603T	CONNECTOR (MALE)	1	
CN5	VJP4292	CONNECTOR (MALE)	1	
CN6	VJP1230T	CONNECTOR (MALE)	1	
CP1-P4	VJR1072	PIN	4	
D1	SC80204	DIODE	1	
D2,D3	DAP202U	DIODE	2	
D4	1SS302	DIODE	1	
D5	DAN202U-T10	DIODE	1	
D6,D7	RLS245	DIODE	2	
D8	DAN202U-T10	DIODE	1	
D9	ESJA57-04A	DIODE	1	
D10	RLS245	DIODE	1	
D13	RLS245	DIODE	1	
E1	VJR1072	PIN	1	
FBT	VLT0949	FLYBACK TRANSFORMER	1	
HLC	VLQ0889	HORIZON LINEAR COIL	1	
IC	TC74HC164AF	IC	1	
IC2	TC74HC08AF	IC	1	
IC3	TC7W04F	IC	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC4	M66311FP	IC	1	
IC5	TL1453CNS	IC	1	
IC6	TC4S01F	IC	1	
IC7,C8	TC4W53F	IC	2	
IC9	UPC358G2-E2	IC	1	
IC10,11	TC4S69F	IC	2	
IC12	LM4041E1M3	IC	1	
L1	VLQ0891	COIL	1	
L2	VLQ0890	COIL	1	
L3	VLQ0891	COIL	1	
Q1	2SC4081	TRANSISTOR	1	
Q2	2SJ245S	TRANSISTOR	1	
Q3	2SA1579	TRANSISTOR	1	
Q4	2SB1132T100	TRANSISTOR	1	
Q5-Q8	2SK1254L	TRANSISTOR	4	
Q9-11	2SC4081	TRANSISTOR	3	
Q15	2SC4081	TRANSISTOR	1	
Q20	2SC4081	TRANSISTOR	1	
Q21	2SA1576A	TRANSISTOR	1	
R1	ERJ6GEYG22	M.RESISTOR CH 1/10W 22	1	
R2	ERJ6GEYF33	M.RESISTOR CH 1/10W 33	1	
R3	ERJ6GEYG10	M.RESISTOR CH 1/10W 10	1	
R4	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R5	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3	1	
R6	ERJ6GEYG33	M.RESISTOR CH 1/10W 33	1	
R7	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R9	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3	1	
R11	ERJ6GEYG33	M.RESISTOR CH 1/10W 33	1	
R17,18	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	2	
R20,21	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7	2	
R22-24	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	3	
R25-27	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	3	
R28	ERJ6GEYJ47	M.RESISTOR CH 1/10W 47	1	
R29	ERJ6GEYG27	M.RESISTOR CH 1/10W 2.7	1	
R30,31	ERJ6GEYG15	M.RESISTOR CH 1/10W 1.5	2	
R32	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R33-35	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	3	
R36	ERJ6GEYG10	M.RESISTOR CH 1/10W 10	1	
R37	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R38	ERJ6GEYG36	M.RESISTOR CH 1/10W 3.6	1	
R39	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R40	ERJ6GEYG13	M.RESISTOR CH 1/10W 13	1	
R41	ERJ6GEYG15	M.RESISTOR CH 1/10W 1.5	1	
R42	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3	1	
R43,44	ERJ6GEYG10	M.RESISTOR CH 1/10W 10	2	
R45	ERJ6GEYG56	M.RESISTOR CH 1/10W 5.6	1	
R46	ERJ6GEYG10	M.RESISTOR CH 1/10W 10	1	
R48	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7	1	
R49	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
R51	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R52	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
R54	ERJ6GEYG22	M.RESISTOR CH 1/10W 22	1	
R55	ERJ6GEYG18	M.RESISTOR CH 1/10W 18	1	
R56	ERJ6GEYF33	M.RESISTOR CH 1/10W 33	1	
R57	ERJ6GEYG18	M.RESISTOR CH 1/10W 18	1	
R58	ERJ8GEYJ1R2	M.RESISTOR CH 1/8W 1.2	1	
R60	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3	1	
R61,62	ERJ6GEYG22	M.RESISTOR CH 1/10W 22	2	
R63	ERJ6GEYG10	M.RESISTOR CH 1/10W 10	1	
R65	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R66	ERJ6GEYG56	M.RESISTOR CH 1/10W 5.6	1	
R67	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7	1	
R68	ERJ6GEYG10	M.RESISTOR CH 1/10W 10	1	
R69	ERJ6GEYG10	M.RESISTOR CH 1/10W 1M	1	
R70	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R71	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R72-74	ERJ6GEYJ33	M.RESISTOR CH 1/10W 3.3	3	
R75	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R76	ERJ6GEYG22	M.RESISTOR CH 1/10W 22	1	
R77	ERJ6GEYG68	M.RESISTOR CH 1/10W 68	1	
R78	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R80	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	

## AJ-VF20WP/E

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R81	ERJ6GEYJ5R	M.RESISTOR CH 1/10W 5.6K	1	
R101	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0 Ω	1	
R104,05	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	2	
A R110	VRE0218	M.RESISTOR	1	
R111	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
RV1	VRV0303B102	V.RESISTOR 1K	1	
RV3,V4	VRV0303B502	V.RESISTOR 5K	2	
RV5	VRV0303B103	V.RESISTOR 10K	1	
RV6	VRV0303B502	V.RESISTOR 5K	1	
RV7,V8	VRV0303B101	V.RESISTOR 100 Ω	2	
S2	VST0332	TOGGLE SWITCH	1	
S3	VST0333	TOGGLE SWITCH	1	
		MISCELLANEOUS		
	VSC4926	SHIELD CASE	1	
• i E2	VEP20781A	SUB 1 P.C.BOARD	1	(RTL)AJ-VF20WP
	VEP20781C	SUB 1 P.C.BOARD	1	(RTL)AJ-VF20WE
C1	VCS1VQ105	E.CAPACITOR 35V 1M	1	
C2-C4	VCS1DQ106	E.CAPACITOR 20V 10M	3	
C5,C6	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	2	
C7,C8	VCS1DQ106	E.CAPACITOR 20V 10M	2	
C9	VCS1VQ105	E.CAPACITOR 35V 1M	1	
C10	ECUX1H682K	C.CAPACITOR CH 50V 6800P	1	
C12	ECHU1C472J	P.CAPACITOR 16V 4700P	1	
C13	ECUM1E223K	C.CAPACITOR CH 25V 0.023U	1	
C14,15	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	2	
C16,17	VCS1VQ105	E.CAPACITOR 35V 1M	2	
C19	ECUM1H472K	C.CAPACITOR CH 50V 4700P	1	
C20	VCEV1CBJ10	E.CAPACITOR 16V 100U	1	
C21	ECUM1H221J	C.CAPACITOR CH 50V 220P	1	
C22	ECUM1H153K	C.CAPACITOR CH 50V 0.015U	1	
C23	VCS1DQ335	E.CAPACITOR 20V 3.3M	1	
C24	ECUX1E104K	C.CAPACITOR CH 25V 0.1U	1	
C25	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C26	ECUM1H562K	C.CAPACITOR CH 50V 5600P	1	
C27	VCEV1CBL47	E.CAPACITOR 16V 470U	1	
CN21	VJP1614	CONNECTOR (MALE)	1	
CN22	VJP1843	CONNECTOR (MALE)	1	
CP3	VJR1072	TEST POINT	1	
D1	CL-200HRCT	LED	1	
D2	DAN202U-T10	DIODE	1	
D3	1SS302	DIODE	1	
IC1	HA11423MP	IC	1	
Q1,Q2	2SC4081	TRANSISTOR	2	
Q3	IMZ1	TRANSISTOR-RESISTOR	1	
R1	ERJ6GEYG22	M.RESISTOR CH 1/10W 2.2K	1	
R2	ERJ6GEYG47	M.RESISTOR CH 1/10W 47Ω	1	
R3	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R4	ERJ6GEYF12	M.RESISTOR CH 1/10W 12K	1	
R5	ERJ6GEYG27	M.RESISTOR CH 1/10W 27K	1	
R6	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R7	ERJ6GEYF82	M.RESISTOR CH 1/10W 8.2K	1	
R8	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R9	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	
R10	ERJ6GEYG12	M.RESISTOR CH 1/10W 12K	1	
R11	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R12	ERJ6GEYG68	M.RESISTOR CH 1/10W 68K	1	
R13	ERJ6GEYF12	M.RESISTOR CH 1/10W 12K	1	
R14	ERJ6GEYF82	M.RESISTOR CH 1/10W 8.2K	1	
R15	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R16	ERJ6GEYG22	M.RESISTOR CH 1/10W 2.2K	1	
R17	ERJ6GEYF47	M.RESISTOR CH 1/10W 47K	1	
R18	ERJ6GEYJ224	M.RESISTOR CH 1/10W 220	1	
R19	ERJ6GEYG56	M.RESISTOR CH 1/10W 5.6K	1	
R20	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R21	ERJ6GEYG68	M.RESISTOR CH 1/10W 6.8K	1	
R22	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R23	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
R24	ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
R25	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1	
R26	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	1	
R27	ERJ6GEYJ4R	M.RESISTOR CH 1/10W 4.7K	1	
R28	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1	
R29	ERJ6GEYF47	M.RESISTOR CH 1/10W 47K	1	
R30	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	
R31	ERJ6GEYF56	M.RESISTOR CH 1/10W 56K	1	
R32	ERJ6GEYJ47	M.RESISTOR CH 1/10W 47K	1	
R33	ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
RV1,V2	EVML1GA00B	V.RESISTOR 5K	2	
RV3,V4	EVML1GA00B	V.RESISTOR 500	2	
		MISCELLANEOUS		
	VMP6012	P.C.BOARD STAY	1	
	XSB2+4FC	SCREW	2	
* j E3	VEP20782A	SUB 2 P.C.BOARD	1 (RTL)	
C1,C2	VCS1DQ106	E.CAPACITOR 20V 10M	2	
C3	VCS1AQ226	E.CAPACITOR 10V 22M	1	
C4	ECUM1H330J	C.CAPACITOR CH 50V 33P	1	
C5	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C6	ECUM1H330J	C.CAPACITOR CH 50V 33P	1	
C7	VCS1DQ475	E.CAPACITOR 20V 4.7M	1	
C8	ECUM1C105Z	C.CAPACITOR CH 16V 1U	1	
C9,10	ECUM1H101J	C.CAPACITOR CH 50V 100P	2	
C11	VCS1DQ475	E.CAPACITOR 20V 4.7M	1	
C12	VCS1DQ106	E.CAPACITOR 20V 10M	1	
C13	ECUM1H103K	C.CAPACITOR CH 50V 0.01U	1	
C14,15	ECUM1C105Z	C.CAPACITOR CH 16V 1U	2	
CN31	VJP1943	CONNECTOR (MALE)	1	
D1,D2	CL200HR-CT	DIODE	2	
D3	1SS302	DIODE	1	
D4	HZK4ALL	DIODE	1	
D5	1SS302	DIODE	1	
D6	HZK9CL	DIODE	1	
DL1	VLD0413	DELAY	1	
IC1	TC4W66F	IC	1	
IC2	UPC358G2-E2	IC	1	
IC3	TC4W53F	IC	1	
L1	VLQ0892	COIL	1	
Q1,Q2	2SC4081	TRANSISTOR	2	
Q3-Q7	2SC417-F14	TRANSISTOR	5	
Q8-10	2SC4102	TRANSISTOR	3	
Q11	2SA1579-T106	TRANSISTOR	1	
Q12	2SK664	TRANSISTOR	1	
R1	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1	
R2	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1	
R3	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1	
R4	ERJ6GEYG27	M.RESISTOR CH 1/10W 27K	1	
R5	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1	
R6	ERJ6GEYG10	M.RESISTOR CH 1/10W 100	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R7	ERJ6GEYG33	M.RESISTOR CH 1/10W 3.3K	1						
R8-10	ERJ6GEYJ55	M.RESISTOR CH 1/10W 550	3						
R11,12	ERJ6GEYG18	M.RESISTOR CH 1/10W 1.8K	2						
R13	ERJ6GEYF39	M.RESISTOR CH 1/10W 39K	1						
R14	ERJ6GEYG22	M.RESISTOR CH 1/10W 22K	1						
R15	ERJ6GEYJ55	M.RESISTOR CH 1/10W 550	1						
R16,17	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	2						
R18	ERJ6GEYG27	M.RESISTOR CH 1/10W 2.7K	1						
R19	ERJ6GEYG36	M.RESISTOR CH 1/10W 36K	1						
R20	ERJ6GEYJ55	M.RESISTOR CH 1/10W 550	1						
R21	ERJ6GEYG30	M.RESISTOR CH 1/10W 3K	1						
R22	ERJ6GEYG68	M.RESISTOR CH 1/10W 6.8K	1						
R23,24	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	2						
R25	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1						
R26	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	1						
R27	ERJ6GEYF56	M.RESISTOR CH 1/10W 56K	1						
R28	ERJ6GEY0R0	M.RESISTOR CH 1/10W 0	1						
R29	ERJ6GEYF47	M.RESISTOR CH 1/10W 4.7K	1						
R30	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1						
R31	ERJ6GEYF82	M.RESISTOR CH 1/10W 8.2K	1						
R32	ERJ6GEYG82	M.RESISTOR CH 1/10W 82K	1						
R33	ERJ6GEYG16	M.RESISTOR CH 1/10W 1.6K	1						
R34	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1						
R35	ERJ6GEYF39	M.RESISTOR CH 1/10W 39K	1						
R36	ERJ6GEYG18	M.RESISTOR CH 1/10W 18K	1						
R37	ERJ6GEYG10	M.RESISTOR CH 1/10W 10K	1						
R38	ERJ6GEYG22	M.RESISTOR CH 1/10W 2.2K	1						
R39	ERJ6GEYG56	M.RESISTOR CH 1/10W 56K	1						
R40	ERJ6GEYF39	M.RESISTOR CH 1/10W 39K	1						
R41	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1						
R42	ERJ6GEYJ33	M.RESISTOR CH 1/10W 3.3K	1						
R43	ERJ6GEYG56	M.RESISTOR CH 1/10W 56K	1						
R45	ERJ6GEYG10	M.RESISTOR CH 1/10W 1K	1						
R50	ERJ6GEYF47	M.RESISTOR CH 1/10W 47K	1						
R51	ERJ6GEYF33	M.RESISTOR CH 1/10W 33K	1						
R52	ERJ6GEYG15	M.RESISTOR CH 1/10W 1.5K	1						
RV1	VRV0305B202	V.RESISTOR 2K	1						
RV2	EVML1GA00B	V.RESISTOR 500	1						
RV3	VRV0305B502	V.RESISTOR 5K	1						
RV4	EVML1GA00B	V.RESISTOR 100K	1						
RV5	VRV0305B103	V.RESISTOR 10K	1						
RV6	EVML1GA00B	V.RESISTOR 500K	1						
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